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ENVIRONMENTAL PROTECTION AGENCY
40 CFR Part 63

[AD-FRL-4892-6]
RIN 2060-AE04

National Emission Standards for Hazardous Air Pollutants (NESHAP)
(Secondary Lead Smelters)

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice of proposed rule; notice of public hearing.

SUMMARY: This action proposes standards that would limit emissions of hazardous air pollutants (HAP's) from new and existing secondary lead smelters. The proposed standards partially implement section 112(d) of the Clean Air Act (the Act) as amended in November 1990, which requires the Administrator to regulate categories of major and area sources of HAP's listed in section 112(b) of the Act. The intent of the standards is to reduce HAP emissions from secondary lead smelters to the maximum degree achievable through the application of maximum achievable control technology (MACT). The EPA is also proposing to add secondary lead smelters that are area sources to the list of source categories that will be subject to MACT standards.

DATES: Comments. Comments must be received on or before August 8, 1994.

Public Hearing. If a request to speak at a public hearing is received, the hearing will be held on July 11, 1994, beginning at 10 a.m. Requests to speak at a public hearing must be received by the EPA by June 30, 1994.

ADDRESSES: Comments. Comments should be submitted (in duplicate, if possible) to: Air and Radiation Docket and Information Center (6102), Attention Docket No. A-92-43, U.S. Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460. The Agency requests that a separate copy also be sent to the contact person listed below.

Public Hearing. If a public hearing is requested, it will be held at the EPA Office of Administration auditorium in Research Triangle

Park, North Carolina. Persons interested in attending the hearing or wishing to present oral testimony should contact Mary Hinson, Industrial Studies Branch (MD-13), U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, telephone number (919) 541-5601.

Background Information Document. The Background Information Document (BID) for the proposed standard may be obtained from the docket or from the US EPA Library (MD-35), Research Triangle Park, North Carolina 27711, telephone number (919) 541-2777. Please refer to "Secondary Lead Smelting--Background Information Document for Proposed Emissions Standards," EPA No. EPA-453/R-94-024a.

Docket. Docket No. A-92-43 contains supporting information used in developing the proposed standards. The docket is located at the U.S. Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460 in room M-1500, Waterside Mall (ground floor), and may be inspected from 8:30 a.m. to 12 p.m. and 1 to 3 p.m., Monday through Friday. The proposed regulatory text and other materials related to this rule making are available for review in the docket or copies may be mailed on request from the Air Docket by calling (202) 260-7548. A reasonable fee may be charged for copying docket materials.

FOR FURTHER INFORMATION CONTACT: For information concerning the proposed standards and technical aspects of secondary lead smelting emissions and control, contact Mr. George Streit at (919) 541-2364, Industrial Studies Branch, Emission Standards Division (MD-13), U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711. For information concerning the area source listing of secondary lead smelters, contact Ms. Dianne Byrne at (919) 541-5342, Pollutant Assessment Branch, Emission Standards Division (MD-13) at the above address.

SUPPLEMENTARY INFORMATION: The regulatory text of the proposed rule is not included in this Federal Register notice, but is available in Docket No. A-92-43 or by request from the Air Docket (see ADDRESSES). If necessary, a limited number of copies is available from the EPA contact persons designated earlier in this notice. This Notice with the proposed regulatory language is also available on the Technology Transfer Network (TTN), one of EPA's electronic bulletin boards. TTN provides information and technology exchange in various areas of air pollution control. The service is free, except for the cost of a phone call. Dial (919) 541-5742 for up to a 14,400 bps modem. If more information on TTN is needed, call the HELP line at (919) 541-5384.

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VIII. Statutory Authority

I. Initial List of Categories of Major and Area Sources

Section 112 of the Act requires that the EPA promulgate regulations requiring the control of HAP emissions from major and area sources. The control of HAP's is achieved through promulgation of emission standards under sections 112(d) and (f) and work practice standards under section 112(h) for categories of sources that emit HAP's.

An initial list of categories of major and area sources of HAP's selected for regulation in accordance with section 112(c) of the Act was published in the Federal Register on July 16, 1992 (57 FR 31576). Secondary lead smelters is one of the 174 categories of sources listed. The category consists of smelters that recycle lead-bearing scrap materials, primarily lead-acid batteries, into lead metal. The listing was based on the Administrator's determination that secondary lead smelters may reasonably be anticipated to emit several of the 189 listed HAP's in quantities sufficient to designate them as major sources. Information subsequently collected by the EPA as part of this rulemaking confirms that two-thirds of operating secondary lead smelters have the potential to emit greater than 9.1 megagrams per year (Mg/yr) [10 tons per year (tpy)] of a single HAP or greater than 22.7 Mg/yr (25 tpy) of a combination of HAP's and, therefore, are major sources.

Section 112(c)(3) directs the Administrator to list each category of area sources that the Administrator finds presents a threat of adverse effects to human health or the environment warranting regulation. The EPA performed an assessment of the remaining one-third of the secondary lead smelters not qualifying as major sources to determine whether the listing of these area sources for regulation under section 112(c)(3) was justified. Based on a detailed assessment of emissions, population exposure, and known and suspected health effects, the Administrator proposes finding that the threat of adverse effects to human health from area sources in the secondary lead smelter category is sufficient to support regulation. Smelters designated as area sources would, under the proposed regulation, be subject to the same standards as smelters qualifying as major sources. The rationale

for this area source listing is presented in more detail in section II.D of this preamble.

The secondary lead smelters category was originally in the group of categories for which final regulations are scheduled for promulgation by November 15, 1994. Final regulations are now scheduled for promulgation by May 31, 1995 (58 FR 63952-63953) in accordance with a consent decree entered in *Sierra Club v. Browner*, Case Number 93-0124 (and related cases) (D.D.C. 1993).

II. Background

A. Regulatory History

The EPA promulgated new source performance standards (NSPS) for secondary lead smelters on March 8, 1974 (40 CFR part 60, subpart L). The NSPS limit emissions of particulate matter (PM) from blast and reverberatory furnaces (including rotary furnaces) to a concentration of 50 milligrams per dry standard cubic meter (mg/dscm) [0.022 grains per dry standard cubic foot (gr/dscf)] and emissions from refining kettles (pot furnaces) to 10 percent opacity. Secondary lead smelters are also subject to state regulations enacted to prevent violations of the National Ambient Air Quality Standards (NAAQS) for lead. In addition, about one-half of smelters are subject to permit conditions developed under the Prevention of Significant Deterioration provisions of the Act.

Secondary lead smelters must also obtain hazardous waste storage permits pursuant to the Resource Conservation and Recovery Act (RCRA) to store spent lead-acid batteries before smelting them (40 CFR 266.80(b)). Air emissions from smelting activities, however, are not presently regulated under the hazardous waste rules (40 CFR 266.100(c)).

On July 16, 1992, the EPA published an initial list of categories of major and area sources selected for regulation in accordance with section 112(c) of the Act (57 FR 31476). Secondary lead smelters were among the listed categories. On December 3, 1993, the EPA published a schedule for the promulgation of standards for the sources selected for regulation under section 112(c). According to this schedule, regulations for secondary lead smelters must be promulgated no later than May 31, 1995 (58 FR 63941). Today, the EPA is issuing a notice of proposed rulemaking for secondary lead smelters and is soliciting comments on the proposed rule.

Air emissions from secondary lead smelters may also potentially be subject to regulation under the rules implementing RCRA. This is because the principal feed material to these devices, scrap lead-acid batteries, is a spent material being reclaimed, and hence is defined as

a solid and (by virtue of the lead content) hazardous waste (40 CFR 261.2 (a)(2)(i), (c)(3), and *Ilco v. EPA*, 996 F. 2d 1126 (11th Cir. 1993)). In 1991, the EPA decided to defer RCRA standards for the air emissions from these devices, in large part because the forthcoming Clean Air Act MACT standards might make further RCRA controls unnecessary (56 FR 7142 (Feb. 21, 1991)) (40 CFR 266.100(c)). In proposing this rule, EPA believes that this rule also satisfies the goals and objectives of RCRA so that any further RCRA regulation of air emissions would be unnecessary. The EPA is specifically soliciting comments on this decision.

B. Description of Source Category

Secondary lead smelters are recycling facilities that use blast, rotary, reverberatory, and/or electric furnaces to recover lead metal from lead-bearing scrap materials, primarily lead-acid batteries. The secondary lead smelters source category does not include remelters and refiners or primary lead smelters.

There are 23 secondary lead smelters in the United States, although only 16 of them were operating as of December 1993. Smelters often close temporarily when the price of lead is low. A current trend in the industry is toward fewer but larger smelters, although overall industry capacity has been relatively constant.

Lead-acid batteries represent about 90 percent of the lead-bearing raw materials at a typical secondary lead smelter. The majority of these batteries are automotive-type batteries and the remainder are industrial and uninterruptible power supply batteries. The other 10 percent of lead-bearing materials are battery plant scrap, defective batteries, drosses from refining operations, and other scrap such as lead pipes and roof flashing.

About 98 percent of all lead-acid batteries are recycled at secondary lead smelters. The remaining 2 percent are either stored indefinitely in residential basements and garages, disposed of as municipal solid waste, or dumped illegally. Secondary lead smelters, however, represent the only acceptable disposal option for used batteries, and these smelters also recover or treat the plastic case material and sulfuric acid from automotive-type batteries.

The secondary lead smelting process consists of: (1) Breaking lead-acid batteries and separating the lead-bearing materials from the other materials, including the plastic case material and acid electrolyte, (2) melting lead metal and reducing lead compounds to lead metal in the smelting furnace, and (3) refining and alloying the lead to customer specifications.

Battery breaking is accomplished using hammermills to crush whole batteries. Saws are used at some blast furnace smelters to cut open

batteries so that the lead grids from inside the battery can be removed intact as whole units. The empty cases are then sent to a hammermill for crushing. Following battery breaking, a sink/float separator is used to separate the lead-bearing materials from the polypropylene plastic from the battery cases, which is sold for recycling.

The lead-bearing components are then sent directly to a materials storage and handling area or are chemically treated to remove the sulfur in the lead paste attached to the battery grids. The desulfurization step is performed to reduce sulfur emissions from the smelting furnace and to improve furnace efficiency.

Lead-bearing materials are typically stored in bins or enclosures before being charged to the smelting furnaces. If the storage area is not totally enclosed, the storage piles and the roadways between them are usually kept wet to prevent the formation of dust that may cause fugitive emissions. Materials are handled within the smelter by front-end loaders, enclosed screw conveyors, and belt- or pan-type conveyors.

Broken battery components are charged to the smelting furnaces along with lead-bearing slag, dross, flue dust recycled from the air pollution control devices, fluxing agents (including iron, silica sand, and limestone or soda ash), and coke. Fluxing agents are added to blast and rotary furnaces to promote the conversion of lead compounds to lead metal. Coke is added to blast furnaces as a fuel and to rotary and reverberatory furnaces as a fluxing agent. A dryer may be used prior to charging a reverberatory furnace to remove moisture from the charge materials. A dryer is typically a large, rotating chamber heated to about 200 deg.C (400 deg.F) by a gas-fired burner. The exhaust from the dryer is drawn directly into the reverberatory furnace.

Smelting is performed in reverberatory, blast, rotary, or electric smelting furnaces. Reverberatory and blast furnaces are the most common types of smelting furnaces. Reverberatory furnaces are always operated in conjunction with a blast furnace or an electric furnace. Blast and rotary furnaces may be operated independently of other furnace types. All smelting furnaces operate at a temperature of about 980 to 1,200 deg.C (1,800 to 2,200 deg.F).

Blast furnaces are vertical shaft furnaces that use coke as a fuel source. The combustion zone of the furnace is at the bottom of the vertical shaft, where combustion air is injected through tuyeres. The combustion gases then pass through a thick column of charge material before being vented to a control device. Exhaust temperatures are relatively cool, typically about 420 to 480 deg.C (800 to 900 deg.F).

Rotary furnaces consist of a rotating, refractory-lined cylinder and are fired in the same way as reverberatory furnaces. Unlike other smelting furnaces, which are operated on a continuous basis, rotary furnaces are operated on a batch cycle consisting of charging, smelting, and tapping of lead and slag.

Blast and rotary furnaces produce hard and semi-soft lead, respectively, by adding soda ash (Na_2CO_3) or limestone (CaCO_3) to the charge materials as fluxing agents. These fluxing agents promote the reaction of lead sulfate (PbSO_4) and carbon (from coke) to reduce the PbSO_4 to elemental lead. The fluxing agents, however, also promote the reduction of oxides of alloying metals to their elemental forms. These metals are tapped from the furnace with the lead in the form of a hard or semi-soft lead alloy.

Reverberatory furnaces are rectangular, refractory-lined furnaces that use natural gas- or propane-fired jets to heat the walls and roof of the furnace and the charge materials. Reverberatory furnaces are used to produce soft (nearly pure) or semi-soft lead by reducing lead compounds to metallic form, but at the same time oxidizing the alloying elements so that they are removed in the slag. Therefore, soda ash and limestone fluxing agents are added to reverberatory furnaces in much smaller quantities than to blast or rotary furnaces.

Reverberatory furnace slag has a much higher lead content than blast or rotary furnace slag because of the lower reducing conditions of the furnace. This slag must be processed in a blast or electric furnace to recover the remaining lead fraction. For this reason, reverberatory furnaces are always operated in conjunction with a blast or electric furnace.

There is only one electric furnace in use in the U. S. secondary lead industry. It is collocated with a reverberatory furnace at one of three smelters owned by the same company. The electric furnace is only used to process reverberatory furnace slag from the furnace with which it is collocated and slag shipped in from the company's other two smelters. The charge materials in the furnace are heated by passing an electric current through them. The electric furnace produces a hard lead similar to that from a blast furnace.

Blast, rotary, and electric furnaces produce a final slag that cannot be recycled and that must be disposed of as a solid waste. This slag, however, may qualify as a hazardous waste and must be disposed of in an approved landfill.

The lead tapped from smelting furnaces is refined and alloyed in open-top refining kettles that are heated from underneath by a gas-fired burner. Impurities are removed from the molten lead as drosses that float on the surface of the lead. Drosses often have a high lead content and are therefore recycled to the smelting furnace. After refining, lead is pumped from the refining kettle into a machine for casting into ingots. These ingots are stored at the smelter before being shipped to a customer or transferred to a collocated battery manufacturing facility.

Flue dust collected from baghouses at secondary lead smelters is recycled to the smelting furnaces for recovery of the lead content. At

smelters that operate blast furnaces, an agglomerating furnace is used to heat and melt the flue dust so that it can be cast into molds before being recycled to the furnace. This is done to facilitate handling of the dust and to prevent the dust from clogging the blast furnace charge column.

C. Emissions and Factors Affecting Emissions

Hazardous air pollutants are emitted from secondary lead smelters as: (1) Process emissions contained in the primary exhaust of smelting furnaces, (2) process fugitive emissions associated with charging and tapping of smelting furnaces and lead refining kettles, and (3) fugitive dust emissions from wind or mechanically induced entrainment of dust from stockpiles and plant yards and roadways.

1. Process Emissions

Smelting furnaces are sources of all three classes of HAP's: metal, organic, and acid gas [chlorine (Cl_2) and hydrochloric acid (HCl)]. The mix and relative quantities of potential emissions are highly dependent on furnace type and use. Metal HAP emissions from process sources are produced through the volatilization of the metals contained in the feed materials by the elevated smelting temperatures or by the entrainment of metal-containing PM in the furnace exhaust. All smelting furnace types emit substantial quantities of metal compounds, ranging from 40 to 100 Mg/yr (uncontrolled). About 70 percent of metal HAP emissions are lead compounds, with lesser amounts of antimony, arsenic, and other metal compounds. Controlled emissions, however, are typically less than 1 Mg/yr.

Organic HAP emissions from smelting furnaces result from incomplete combustion of organic-containing materials (coke, plastic separators, and hard rubber battery case material) in the furnace charge, as well as coke and other fuels used for combustion. The emissions potential for organic HAP's is highly variable. Blast furnaces typically emit larger amounts of organic HAP's than other furnace types. A typical uncontrolled blast furnace can emit over 100 Mg/yr of a mixture of about 30 organic HAP's. The most predominant HAP's are benzene, carbon disulfide, 1-3-butadiene, methyl chloride, and styrene. Also found in blast furnace emissions are trace amounts of dioxins/furans. Emissions of 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD), which is a HAP, are about 0.07 grams per year from a typical blast furnace. Emissions of total dioxins/furans, expressed as 2,3,7,8-TCDD toxic equivalents are about 0.3 grams per year.

Reverberatory and rotary furnaces have comparatively low organic HAP emissions. Uncontrolled emissions from a typical furnace are less than 4 Mg/yr of a mixture of about 25 or 30 organic HAP's. The most predominant are benzene, 1-3-butadiene, formaldehyde, and styrene.

Reverberatory and rotary furnaces are operated at much higher flue gas temperatures [about 980 to 1,200 deg.C (1,800 to 2,200 deg.F)] and turbulence and achieve more complete combustion than blast furnaces. As a result, reverberatory and rotary furnaces tend to have much lower organic HAP emissions. Emissions of dioxins/furans from these furnaces are near or below detection limits.

The one electric furnace now in operation processes only slag (which contains little, if any, organic material) and uses no coke or other fossil fuel. Therefore, organic HAP emissions are presumed to be very low. This presumption is confirmed by CO emissions of only 1.1 kilograms per hour (kg/hr) [2.5 pounds per hour (lb/hr)] and a CO concentration of 26 parts per million by volume (ppmv), according to the results of a test conducted by the smelter operator (Docket A-92-43, Item No. II-B-8).

For reverberatory/blast furnace configurations, a substantially lower level of organic HAP emissions is possible than for blast furnaces alone. Commingling (blending) the blast furnace exhaust (temperature about 500 deg.C) and the much hotter reverberatory furnace exhaust (about 1,000 deg.C) contributes significantly to the destruction of the organic HAP compounds in the blast furnace exhaust. Organic HAP emissions from such a commingled configuration are also about 4 Mg/yr.

All smelting furnaces that process broken batteries are potential sources of HCl and Cl₂ emissions. Many used lead-acid batteries contain polyvinyl chloride (PVC) plastic separators between the battery grids, although the use of PVC plastic as a separator material has been discontinued by most battery manufacturers. These separators are typically not removed from the lead-bearing parts of the battery during the battery breaking and separation process. When the PVC plastic is burned in the smelting furnace, the chlorides are released as HCl, Cl₂, and chlorinated hydrocarbons.

In blast furnaces and rotary furnaces, soda ash or limestone are used as fluxing agents to increase the reduction of lead compounds to elemental lead. These fluxing agents also combine with the chlorine in the charge materials to form sodium chloride (NaCl) and calcium chloride (CaCl₂) salts, which are removed with the slag. As a result, these furnaces have low HCl and Cl₂ emissions, typically less than 1 Mg/yr total.

In reverberatory furnaces, however, much less fluxing agent is added to the charge material than in blast or rotary furnaces in order to produce a soft lead product. Less of the chlorine is removed in the slag and, therefore, reverberatory furnaces have higher HCl and Cl₂ emissions than blast or rotary furnaces, about 100 Mg/yr of HCl and 4 Mg/yr of Cl₂.

The one electric furnace in use is not a source of HCl or Cl₂

emissions because it processes only slag from a reverberatory furnace to which fluxing agents are added. Any chlorine present in the slag should be in the form of CaCl_2 or NaCl and cannot be emitted as HCl or Cl_2 .

2. Process Fugitive Emissions

Process fugitive emissions result from furnace charging, lead and slag tapping, lead refining and casting, dust agglomerating, and battery breaking. Process fugitive emissions contain metal HAP's and, in some cases, organic HAP's. Total uncontrolled metal HAP emissions from all process fugitive sources at a typical smelter range from 10 to 80 Mg/yr, depending on smelter capacity. Metal HAP emissions are independent of furnace configuration. Controlled metal HAP process fugitive emissions are typically less than 1 Mg/yr.

Depending on charging method, hood design, and ventilation rate, organic HAP's may be found in the process fugitive emission stream from blast furnace charging. An improper balance between the ventilation rate of the hood over the furnace charging chute and the primary exhaust gas off-take can result in process emissions being drawn into the process fugitive control system. The escaping organic HAP emissions may be as high as 50 Mg/yr, based on measurements made at one facility at which this problem was detected. Organic HAP emissions from a properly balanced system should be less than 0.5 Mg/yr.

3. Fugitive Dust Emissions

Fugitive dust emissions result from the entrainment of dust due to material handling, vehicle traffic, and wind erosion from storage piles. Fugitive dust emissions contain only metal HAP's. The quantity of fugitive dust emissions is dependent on the size of the facility and the fugitive dust controls and practices in place. These emissions cannot be measured and can only be roughly estimated using emission factors and facility-specific data. Estimates of fugitive dust emissions from all smelters range from 1 to 19 Mg/yr.

D. Adverse Health Effects Finding for Area Sources

As stated previously, the EPA today is proposing to add secondary lead smelters that are area sources to the list of source categories that will be subject to emission standards. In order to list categories of area sources, the EPA must find a threat of adverse health or environmental effects warranting regulation under section 112.

Section 112(a) contains no accompanying definition of adverse health effect. The area source provisions of section 112(k) directing regulation of area sources in urban areas, however, are closely linked to section 112(c) and state that health effects considered under this program shall include, but not be limited to, carcinogenicity, mutagenicity, teratogenicity, neurotoxicity, reproductive dysfunction,

and other acute and chronic effects [section 112(k)(2)]. The term "adverse environmental effect" is defined in section 112(a) as "any significant and widespread adverse effect, which may reasonably be anticipated, to wildlife, aquatic life, or other natural resources, including adverse impacts on populations of endangered or threatened species or significant degradation of environmental quality over broad areas."

In the finding for secondary lead area sources, quantitative assessments of risk are an important consideration in assessing significant threats of adverse health effects. Quantitative risk assessment, in this context, means the estimation of a mathematical probability of an individual or population being subject to some adverse health effect, such as cancer. The EPA has historically developed assessments of potential cancer risks, both to maximally exposed individuals and populations, as part of its regulatory actions under the previous version of section 112. Population risks are expressed in terms of the total number of cancer cases (i.e., cancer incidence) that could be expected to occur in a given time within a prescribed area, considering the exposure of the population within the area to modeled ambient concentrations of toxic air pollutants. In this finding, nationwide cancer incidence is expressed in cases per year. In contrast, a maximum individual "lifetime" risk is expressed as the risk of contracting cancer associated with the highest individual's exposure to the modeled, maximum, long-term concentration of the listed HAP's for an assumed life-span of 70 years. Typically, both these cancer risk estimates are based on upper-bound estimates of cancer potency and exposure. The EPA also considers, where possible, the probability of non-cancer effects.

The finding proposed in today's notice is based only on health effects from inhalation exposures. The EPA did not consider other adverse environmental effects. Future findings for other source categories may be based on environmental effects as well as human health effects as the appropriate information becomes available.

Section 112(c) does not offer a "bright line" test for the EPA to use in making an area source finding. Instead, considering the language cited above, the EPA believes it has discretion to consider a range of health effect endpoints and exposure criteria in making a finding of a threat of adverse effects. In the finding, the EPA considers factors such as the number of sources in a category, the quantity of emissions, the toxicity of the HAP's, the potential for individual and population exposures and risks, the geographical distribution of the sources, and the reasonableness of control measures. Thus, both qualitative and quantitative factors are considered in making a finding.

The EPA recognizes uncertainties in current estimates of risk based on modeled concentrations and the use of several upper-bound risk

assumptions. The EPA acknowledges that current cancer risk estimates do not reflect the true risk, but often represent a conservative risk level that may be an upper bound that is unlikely to be exceeded. The EPA intends to improve its risk estimation procedures in accordance with internal guidance and through the risk assessment studies required under sections 112(f), 112(o), and 303 of title III of the Act.

Today's finding is based on six smelters that the EPA believes fit the definition of an area source plus one other that is borderline between major and area. The smelters are located in six states and approximately 17.6 million people reside within 50 kilometers (about 30 miles) of the seven facilities. These people are considered by the EPA to be exposed to HAP emissions from the smelters.

Secondary lead smelters emit a large number of pollutants. Of these, EPA has performed scientific assessments that provide estimates of the associated health risks of fourteen. Ten of the compounds have unit risk estimates (URE or cancer potency estimates), three (ethylbenzene, n-hexane, and toluene) have inhalation reference concentrations (RfC), and one has a NAAQS (lead). In this finding, elemental lead is being used as a surrogate for all lead compounds. The reason for this is discussed below.

The health effects caused by increased blood lead levels are the same, regardless of the lead compounds causing the exposure. However, there are considerable differences in the bioavailability between lead compounds. Unfortunately, there is little available literature on this subject (Docket No. A-92-43, Item Nos. II-I-18 and II-I-29). The literature that is available, however, does indicate that lead oxide, which accounts for a substantial portion of the lead compounds emitted from secondary lead smelters, is bioavailable. This indicates that using lead as a surrogate for estimating health effects from the lead compounds from this source category should be appropriate.

Lead is also a B2 carcinogen. However, a cancer risk factor has not been developed for lead, so cancer rates associated with its exposure can not be estimated.

Four of the ten potential carcinogens with quantitative assessments are known human carcinogens and have URE's based on epidemiological data. These are arsenic, benzene, and some chromium and nickel compounds. The other potentially carcinogenic compounds have URE's based on animal studies and are classified as either probable or possible human carcinogens. These include acetaldehyde, 1,3-butadiene, cadmium, formaldehyde, naphthalene, and 2,3,7,8-TCDD.

A URE is HAP-specific and equals the risk of cancer per unit of lifetime pollutant exposure. It represents the probability of developing cancer in a hypothetical individual, continuously exposed throughout his/her life to 1 microgram per cubic meter ($\mu\text{g}/\text{m}^3$) of the potential carcinogen in the air. An RfC is also HAP-

specific and is an estimate of the daily exposure to the human population, including sensitive subpopulations, that is likely to be without deleterious effects during a lifetime. The uncertainty of the estimate can span an order of magnitude or more.

The estimated annual cancer incidence for the seven sources modeled is low, approximately 0.1 incidence of cancer per year. However, the EPA estimates that the upper-bound maximum individual lifetime cancer risk associated with any one of the smelters ranges from 4 in 10,000 to 1 in 1,000. Furthermore, about 500 persons living in proximity to these smelters are estimated to be subject to lifetime individual risks possibly in excess of 1 in 10,000; over 40,000 are possibly subject to lifetime individual risks above 1 in 100,000; and about 560,000 are possibly subject to individual lifetime risks above 1 in 1 million. The risks calculated are due to a mixture of pollutants, with arsenic and 1,3-butadiene posing the highest risks.

In addition to cancer risk, the EPA has examined the public health risks associated with elevated blood lead levels. Little controversy exists that high blood lead levels are associated with adverse health effects, but there is also substantial concern regarding health effects associated with lower blood lead levels as well: (1) Alterations in the heme synthetic pathway may affect multiple organ system and physiological functions, (2) children's IQ's may be lowered, (3) impaired auditory function in children may affect language acquisition and learning, and (4) animal experiments and human data have shown that lead accumulates and is retained in the brain and other soft tissues and can be remobilized from bone stores, resulting in a continuing risk of lead toxicity even if exposure to lead is stopped.

Children may be particularly at risk as atmospheric lead deposits on soils, crops, and street and playground surfaces. Soil lead, which serves as a continuous source of outdoor and indoor (household) dusts as well as a direct exposure route for young children, is relatively insoluble and immobile and can continue to accumulate indefinitely.

Approximately 250 people are expected to be exposed to lead concentrations that are above the current lead NAAQS of 1.5 $\mu\text{g}/\text{m}^3$, calendar quarter average. Because the level of the lead NAAQS has not been revised since it was established in 1978, the EPA also determined potential exposure levels below the NAAQS. At 1.0 $\mu\text{g}/\text{m}^3$, the number of people potentially exposed is about 300, rising to 1500 at 0.5 $\mu\text{g}/\text{m}^3$.

As stated above, the EPA did not evaluate environmental risks or health risks associated with non-inhalation exposures because of a lack of site-specific data and, in some cases, effects data. There is some potential for increased risks due to exposure from metal compounds and dioxins through routes of exposure such as ingestion of contaminated soil, ingestion of food and water, and dermal contact. In addition, the

health effects from non-inhalation routes of exposure are not well known for many air pollutants, and data on environmental effects are even more scarce.

The EPA is proposing to regulate secondary lead smelters as area sources, subject to consideration of public comment, because emissions associated with these sources may present a threat of adverse health effects. The upper-bound, maximum lifetime individual risks resulting from exposure to arsenic and 1,3-butadiene are of particular concern. The EPA, therefore, requests comments on the proposal to regulate these sources as area sources and the appropriate criteria to be used in making these decisions. In particular, the EPA requests comment on whether the number of sources, the quantity of emissions, the toxicity of the HAP's, the potential for individual and population exposures and risks, the geographical distribution of the sources, and the reasonableness of control measures justify a decision to regulate area sources within this category.

The EPA notes that the exposures, the cancer incidence, and the maximum individual risk associated with these area sources are all below levels that have prompted the Administrator to designate other categories of area sources for regulation. However, the relatively low costs associated with regulation and the small number of area sources in this category appear to warrant such regulation. The EPA requests comment on whether regulation of these areas sources is warranted.

III. NESHAP Decision Process

A. Source of Authority for NESHAP Development

Section 112 specifically directs the EPA to develop a list of all categories of all major and such area sources as appropriate emitting one or more of the 189 HAP's listed in section 112(b) (section 112(c)). Section 112 of the Act replaces the previous system of pollutant-by-pollutant health-based regulation that proved ineffective at controlling the high volumes and concentrations of HAP's in air emissions. The provision directs that this deficiency be redressed by imposing technology-based controls on sources emitting HAP's, and that these technology-based standards may later be reduced further to address residual risk that may remain even after imposition of technology-based controls. A major source is any source that emits or has the potential to emit 10 tons of any one HAP or 25 tons of any combination of HAP's. The EPA published an initial list of source categories on July 16, 1992 (57 FR 31,586), and may amend the list at any time. (The EPA is proposing to add secondary lead smelters to the list of area sources as part of this rulemaking, for example.)

B. Criteria for Development of NESHAP

The NESHAP are to be developed to control HAP emissions from both new and existing sources according to the statutory directives set out in section 112, as amended. The statute requires the standard to reflect the maximum degree of reduction of HAP emissions that is achievable taking into consideration the cost of achieving the emission reduction, any nonair quality health and environmental impacts, and energy requirements.

Emission reductions may be accomplished through application of measures, processes, methods, systems, or techniques, including, but not limited to: (1) Reducing the volume of, or eliminating emissions of, such pollutants through process changes, substitution of materials, or other modifications, (2) enclosing systems or processes to eliminate emissions, (3) collecting, capturing, or treating such pollutants when released from a process, stack, storage, or fugitive emissions point, (4) design, equipment, work practice, or operational standards (including requirements for operator training or certification) as provided in subsection (h), or (5) a combination of the above (section 112(d)(2)).

To develop a NESHAP, the EPA collects information about the industry, including information on emission source characteristics, control technologies, data from HAP emissions tests at well-controlled facilities, and information on the costs and other energy and environmental impacts of emission control techniques. The EPA uses this information to analyze possible regulatory approaches.

Although NESHAP are normally structured in terms of numerical emission limits, alternative approaches are sometimes necessary. In some cases, for example, physically measuring emissions from a source may be impossible, or at least impractical, because of technological and economic limitations. Section 112(h) authorizes the Administrator to promulgate a design, equipment, work practice, or operational standard, or a combination thereof, in those cases where it is not feasible to prescribe or enforce an emissions standard.

If sources in the source category are major sources, then a MACT standard is required for those major sources. The regulation of the area sources in a source category is discretionary. If there is a finding of a threat of adverse effects on human health or the environment, then the source category can be added to the list of area sources to be regulated. Based on the area source finding described in section II.D of this preamble, the EPA proposes to regulate secondary lead smelters as area sources.

C. Determining the MACT Floor

After the EPA has identified the specific source categories or subcategories of major sources to regulate under section 112, it must set MACT standards for each category or subcategory. Section 112 limits the EPA's discretion by establishing a minimum baseline or "floor" for standards. For new sources, the standards for a source category or subcategory cannot be less stringent than the emission control that is achieved in practice by the best-controlled similar source, as determined by the Administrator (section 112(d)(3)).

The standards for existing sources can be less stringent than standards for new sources, but they cannot be less stringent than the average emission limitation achieved by the best-performing 12 percent of existing sources (excluding certain sources) for categories and subcategories with 30 or more sources, or the best-performing 5 sources for categories or subcategories with fewer than 30 sources (section 112(d)(3)). There are fewer than 30 secondary lead smelters, so the standards for existing sources will be based on the best-performing five sources.

In developing the proposal, the EPA has interpreted the term "average" to be equivalent to "median" and the MACT floor has been selected to represent the median of the five best-controlled sources. The median of the five best-controlled sources was selected as the MACT floor on the basis of control technology because insufficient emissions data were available for determining an average emission limitation. An emission source testing program was then conducted in order to determine an appropriate limitation based on the MACT floor technology.

After the floor has been determined for a new or existing source in a source category or subcategory, the Administrator must set MACT standards that are no less stringent than the floor. Such standards must then be met by all sources within the category or subcategory.

Section 112(d)(2) specifies that the EPA shall establish standards that require the maximum degree of reduction in emissions of hazardous air pollutants * * * that the Administrator, taking into consideration the cost of achieving such emission reduction, and any non-air quality health and environmental impacts and energy requirements, determines is achievable * * *

In establishing standards, the Administrator may distinguish among classes, types, and sizes of sources within a category or subcategory (section 112(d)(1)). For example, the Administrator could establish two classes of sources within a category or subcategory based on size and establish a different emissions standard for each class, provided both standards are at least as stringent as the MACT floor for that class of sources.

In addition, the Act provides the Administrator further flexibility to regulate area sources. Area sources can be regulated by MACT. However, section 112(d)(5) allows the Administrator to promulgate

standards for area sources that provide for the use of ``generally available control technologies (GACT) or management practices." Area source standards promulgated under this authority (GACT standards) would not be subject to the MACT floors described above. Moreover, for source categories subject to standards promulgated under section 112(d)(5), the EPA is not required to conduct a residual risk analysis under section 112(f).

At the end of the data gathering and analysis, the EPA must decide whether it is more appropriate to follow the MACT or the GACT approach for regulating an area source category. (As stated previously, MACT is required for major sources.) If all or some portion of the sources emit less than 9.1 Mg/yr (10 tpy) of any one HAP or less than 22.7 Mg/yr (25 tpy) of total HAP's, then it may be appropriate to define subcategories within the source category and apply a combination MACT/GACT approach: MACT for major sources and GACT for area sources in a source category. In the case of this proposed rulemaking for secondary lead smelters, the EPA has decided to regulate both major and area sources by applying MACT. The EPA knows of no technological or economic reasons why secondary lead smelters that are area sources cannot achieve the same level of control as those that are major sources.

The next step in establishing MACT standards is the investigation of regulatory alternatives. With MACT standards, only alternatives at least as stringent as the floor may be selected. Information about the industry is analyzed to develop model plant populations for projecting national impacts, including HAP emission reduction levels, costs, energy, and secondary impacts. Several regulatory alternative levels (which may be different levels of emissions control or different levels of applicability or both) are then evaluated to select the regulatory alternative that best reflects the appropriate MACT level.

The selected alternative may be more stringent than the MACT floor, but the control level selected must be technically achievable. In selecting a regulatory alternative that represents MACT, the EPA considers the achievable emission reductions of HAP's (and possibly other pollutants that are co-controlled), cost and economic impacts, energy impacts, and other environmental impacts. The objective is to achieve the maximum degree of emissions reduction without unreasonable economic or other impacts (section 112(d)(2)). The regulatory alternatives selected for new and existing sources may be different because of different MACT floors, and separate regulatory decisions may be made for new and existing sources.

The selected regulatory alternative is then translated into a proposed regulation. The regulation implementing the MACT decision typically includes sections on applicability, standards, test methods and compliance demonstration, monitoring, reporting, and recordkeeping. The preamble to the proposed regulation provides an explanation of the

rationale for the decision. The public is invited to comment on the proposed regulation during the public comment period. Based on an evaluation of these comments, the EPA reaches a final decision and promulgates the standard.

IV. Summary of the Proposed Standards

A. Sources To Be Regulated

Standards are being proposed to limit HAP emissions from: (1) Process sources, (2) process fugitive sources, and (3) fugitive dust sources at secondary lead smelters.

Process source emissions are discharged as the main exhaust of a smelting furnace through a chimney, flue, or ductwork. For the purpose of establishing numerical limits for process source emissions, smelting furnaces have been grouped into the following source types: (1) Collocated reverberatory and blast furnaces (reverberatory/blast), (2) reverberatory or rotary furnaces not collocated with a blast furnace, (3) blast furnaces not collocated with a reverberatory furnace, and (4) electric furnaces.

Process fugitive emission sources that would be regulated are smelting furnace charging, smelting furnace lead and slag tapping, flue dust agglomerating furnace operation, and refining kettles.

Fugitive dust emission sources that would be regulated are plant yards and roadways subject to wind and vehicle traffic, materials handling and storage areas, battery breaking areas, and smelting and refining areas.

B. Proposed Emission Limits for Process Sources

Emission limits are being proposed for lead compounds, total hydrocarbons (THC), and HCl and Cl₂ emissions and opacity from reverberatory, blast, reverberatory/blast furnace combination, rotary, and electric furnaces. Limits are being proposed for lead compounds and THC as surrogates for metal HAP's and organic HAP's, respectively.

Lead compound emissions from all smelting furnace configurations (both new and existing) would be limited to a concentration of 2.0 mg/dscm (0.00087 gr/dscf). Total hydrocarbon emissions from both new and existing reverberatory/blast furnace configurations would be limited to 20 ppmv [expressed as propane at 4 percent carbon dioxide (CO₂) to correct for dilution]. Total hydrocarbon emissions from existing blast furnaces would be limited to 360 ppmv (as propane) at 4 percent CO₂. Total hydrocarbon emissions from new blast furnaces would be limited to 70 ppmv (as propane) at 4 percent CO₂. There is no proposed standard for THC emissions from reverberatory, rotary, or

electric furnaces.

Total HCl and Cl₂ emissions from both new and existing reverberatory/blast, blast, reverberatory, and rotary smelting furnace configurations would be limited to 15 mg/dscm (0.0065 gr/dscf) at 4 percent CO₂ to correct for dilution. There is no proposed standard for HCl or Cl₂ emissions from new and existing electric smelting furnaces.

The proposed numerical emission limits for process sources are summarized in table 1.

Table 1.--Summary of Proposed Standards for Process Sources

Furnace configuration	Lead (mg/dscm)	Total THC ^{a,b} compounds (ppmv) dscm)	HCl and Cl ₂ ^a (mg/ dscm)
Reverberatory/blast.....	2	20	15
Blast:			
Existing.....	2	360	15
New.....	2	70	15
Reverberatory and rotary.....	2	None	15
Electric.....	2	None	None

^aTHC and HCl/Cl₂ emissions limits are at 4 percent CO₂ to correct for dilution.

^bConcentrations (ppmv) for THC are as propane.

C. Proposed Standards for Process Fugitive Sources

The proposed standards for process fugitive sources are in the form of equipment and operating standards. The standards apply to both new and existing sources. All secondary lead smelters would be required to control process fugitive emission sources with capture hoods equivalent in design and performance to those specified in the Occupational Safety and Health Administration's "Cooperative Assessment Program Manual for the Secondary Lead Industry" (Docket No. A-92-43, Item No. II-I-16).

The standards would require the following process fugitive sources to be partially enclosed with a hood and ventilated: smelting furnace and dryer charging hoppers and chutes, lead and slag tapping operations, refining kettles, dryer transition pieces, and flue dust agglomerating furnaces. All hoods, except those on refining kettles, would be required to be designed and operated to achieve a face velocity of at least 110 meters per minute (m/min) [350 feet per minute (fpm)] at all openings. Refining kettle hoods would be required to be

designed and operated to achieve a face velocity of at least 75 m/min (250 fpm) and a volumetric flow rate of at least 60 actual cubic meters per minute per square meter [200 actual cubic feet per minute per square foot (acfm/ft²)] of kettle surface area. All hoods would be required to be ventilated to a control device with an outlet lead compound concentration not to exceed 2.0 mg/dscm (0.00087 gr/dscf).

D. Proposed Standards for Fugitive Dust Sources

The proposed standards for fugitive dust sources are in the form of work practice and operating standards. Again, the standards apply to both new and existing fugitive dust sources. Each secondary lead smelter would be required to develop a Standard Operating Procedures (SOP) manual that details procedures to limit fugitive dust emissions. Each smelter's SOP manual would be reviewed and subject to approval by the Administrator.

The SOP manual would describe how each smelter would implement the types of work practices and operating standards which EPA has determined represent MACT controls for fugitive dust emissions. These controls are specified in the proposed regulation and include cleaning of paved areas through vacuuming or power-washing, use of water or chemical dust suppression in materials storage and handling areas, use of partial or total enclosures to prevent wind erosion of storage piles, and use of measures to prevent crossdrafts from upsetting process fugitive control hoods. The SOP manual would also indicate the frequencies with which pavement cleaning and dust suppression are to be performed, and which areas are partially and totally enclosed and which are paved. The MACT controls specified in the proposed regulation would serve as the criteria by which the Administrator would decide whether or not to approve a smelter's SOP.

E. Compliance Dates

Compliance with the standards would be achieved within 24 months of promulgation for existing secondary lead smelters, and upon startup for new and reconstructed smelters.

F. Compliance Test Methods

Testing of lead compound emissions from process and process fugitive emission control devices would be conducted according to EPA reference method 12 (40 CFR part 60, appendix A). Testing of THC emissions from process sources for reverberatory/blast and blast furnace configurations would be conducted according to EPA reference method 25A (40 CFR part 60, appendix A), and the results reported as a

concentration in ppmv, as propane, corrected to 4 percent CO₂ for dilution. Testing of HCl and Cl₂ emissions would be conducted according to EPA reference method 26A (59 FR 19306-19323), and the results reported as HCl equivalents, in mg/dscm, corrected to 4 percent CO₂ for dilution. An average of three runs would be used to determine compliance for lead compounds, THC, and total HCl and Cl₂.

Sampling locations for all compliance tests would be determined by EPA reference method 1. Stack gas velocity and volumetric flow rate would be determined by EPA reference method 2. Gas analysis would be conducted according to EPA reference method 3 for CO₂, oxygen, excess air, and molecular weight on a dry basis. The Single Point Integrated Sampling and Analytical Procedure of EPA reference method 3B would be used to measure the CO₂ content of the stack gas during the THC and HCl/Cl₂ compliance tests for correcting to 4 percent CO₂.

G. Enhanced Monitoring Requirements

Continuous opacity monitors (COM's) would be used on all process control stacks to monitor compliance with the lead compound emission limit. Opacity (based on a 6-minute average) greater than the maximum opacity recorded during the initial lead compliance test (plus 2 percent opacity to allow for normal instrument drift) would be a violation of the standard. Process fugitive and building ventilation baghouse performance would be monitored through inspections of the baghouses. Pressure drop and water flow rate would be monitored for PM scrubbers used to control process fugitive sources.

Compliance with the THC standard would require either continuous monitoring of incineration or afterburner temperature or continuous THC monitoring for reverberatory/blast and blast furnace configurations. The temperature would be maintained above a minimum established during the initial THC compliance test. Operating at a lower temperature (based on a 3-hour average) would constitute a violation of the emissions standard. Alternatively, a facility could monitor THC concentration directly with a THC continuous emissions monitor (CEM) if desired.

Compliance with the HCl/Cl₂ standard would require monitoring of either: (1) The addition of soda ash and limestone to furnace charge materials, (2) scrubber parameters (media pH and injection rate), (3) sulfur dioxide (SO₂) concentration, or (4) HCl concentration. The quantity of soda ash and limestone, the scrubber parameters, or the SO₂ concentration would be maintained within allowable ranges established during the initial HCl/Cl₂ compliance test. Failure to maintain these variables within the allowable ranges would constitute a

violation of the standard. An operator wishing to establish new allowable ranges would have to demonstrate that compliance with the HCl/Cl₂ standard is still achieved. Alternatively, the operator could monitor HCl concentration using an HCl CEM.

All COM's would be required to comply with Performance Specification 1 in appendix B of 40 CFR part 60. If an owner or operator chose to monitor SO₂, the SO₂ CEM would be required to comply with Performance Specification 2 in appendix B of 40 CFR part 60. All CEM's would be required to comply with the Quality Assurance Procedures found in appendix F of 40 CFR part 60.

H. Notification Requirements

The owner or operator of a secondary lead smelter would be required to submit the notifications described in the General Provisions to part 63, (40 CFR part 63, subpart A). These would include the initial notification, notifications of performance tests and continuous monitoring system (including COM and CEM) performance evaluations, and the notification of compliance status. In addition, each owner or operator would be required to submit the SOP manual and a notification to the Administrator requesting review and approval of the smelter's fugitive dust control SOP manual.

I. Recordkeeping and Reporting Requirements

The owner or operator of a secondary lead smelter would be required to retain for 5 years records of: (1) The results of initial and subsequent compliance tests, (2) the recorded values for the parameters that must be monitored to demonstrate continuous compliance, and (3) records demonstrating implementation of the fugitive dust controls contained in the smelter's SOP manual.

The owner or operator would be required to submit the quarterly excess emissions and continuous monitoring performance reports, including the results of annual and other compliance tests, as prescribed in the General Provisions.

V. Summary of Environmental, Energy, and Economic Impacts

A. Facilities Affected by This NESHAP

The proposed standards would apply to all secondary lead smelters in the United States, regardless of whether they are classified as a major source or an area source under section 112(c). The EPA estimates that 18 smelters would have to upgrade controls to reduce emissions. All 23 existing smelters would be required to perform monitoring and

meet the requirements for recordkeeping and reporting. It is not anticipated that any new smelters will be built over the next 5 years because of the depressed price of lead and the excess capacity in the industry.

B. Air Quality Impacts

Under the proposed standards, organic HAP emissions would be reduced by approximately 1,200 Mg/yr (1,300 tpy). This represents an approximately 70-percent reduction from estimated baseline emissions. Metal HAP emissions would be reduced by 53 Mg/yr (58 tpy) through the reduction of process fugitive emissions [29 Mg/yr (32 tpy)] and fugitive dust emissions [24 Mg/yr (26 tpy)]. This represents a 20-percent reduction from baseline metal HAP emissions. There would be no reductions in metal HAP emissions from process sources. Hydrochloric acid and Cl_2 emissions would be reduced 720 Mg/yr (790 tpy). This represents a 98-percent reduction from baseline emissions.

In addition to HAP reductions, criteria pollutant emissions would also be reduced. Emissions of SO_2 would be reduced by 7,400 Mg/yr (8,100 tpy) if wet scrubbers were installed to control HCl/Cl_2 emissions. Emissions of CO would be reduced by approximately 83,000 Mg/yr (91,000 tpy) and THC emissions (including 1,200 Mg/yr of organic HAP's) would be reduced by approximately 6,400 Mg/yr (7,000 tpy). Controlling metal HAP emissions would also reduce PM emissions (including 53 Mg/yr of metal HAP's) by 140 Mg/yr (150 tpy).

C. Water Quality Impacts

Direct water quality impacts from the proposed standards will vary depending on which control option smelters choose in order to comply with the proposed HCl/Cl_2 emission limits. There would be no wastewater impact if all smelters chose to eliminate HCl/Cl_2 emissions through the addition of fluxing agents to the furnace feed material and the removal of chlorides through slagging, which is the least-cost option.

If wet scrubbers are installed to control HCl/Cl_2 emissions, about 27 million gallons of wastewater from scrubber blowdown would be generated. This wastewater would require neutralization and settling before being discharged to a publicly owned treatment works. Evaporation of water from these scrubbers would be about 430 million gallons per year. The evaporated water would require no treatment. Because EPA does not believe smelters would adopt wet scrubbers as a means of compliance, it is not soliciting comment as to whether the existing effluent limitation guidelines for the secondary lead industry should be amended to account for this source of wastewater.

Use of water for wet suppression and pavement cleaning to control fugitive dust emissions could increase the amount of water runoff that must be treated on site. This incremental increase in runoff would represent less than 1 percent of the volume of water currently treated at secondary lead smelters.

Several of the facilities which would be affected by this rule are located in States adjacent to the Great Lakes. Because these facilities would reduce their emissions of metals and organic HAP's, the indirect water quality impacts of this rule are expected to be positive, albeit difficult to quantify.

D. Solid Waste Impacts

The addition of fluxing agents to smelting furnaces to eliminate HCl/Cl₂ emissions through slagging would result in a slight increase in the amount of slag that must be disposed of as solid waste. This increase would represent only about 5 percent of the slag currently generated by each of the six smelters that would be impacted.

If a smelter chose to install a scrubber to control HCl and Cl₂, a solid waste stream that would require disposal could be generated if the smelter also elected to control SO₂ emissions. Scrubbers installed to control only HCl and Cl₂ do not produce solid waste. If two smelters that do not currently perform paste desulfurization installed scrubbers to control SO₂ emissions in addition to HCl/Cl₂ emissions, these scrubbers would generate as much as 21,000 Mg/yr of solid waste as scrubber sludge.

Because secondary lead smelters typically process hazardous waste that exhibits the toxicity characteristics for lead (40 CFR 261.24), all of the residue generated from these facilities would have to satisfy the standards for treatment prescribed in 40 CFR part 268 for D008 (lead-bearing hazardous waste) before any residue can be land-disposed. (*Chemical Waste Management v. EPA*, 976 F. 2d 2 (D.C. Cir. 1992).

Flue dust and sludge generated at secondary lead smelters are listed as hazardous waste KO69 under 40 CFR 261.32, Hazardous Wastes from Specific Sources. Flue dust collected by baghouses is recycled on site to the smelting furnace at all smelters and is not disposed of as a solid waste. Furthermore, the EPA has issued a limited administrative stay so that the KO69 listing does not apply to sludges generated from acid gas scrubber systems located at secondary lead smelters (56 FR 19951, May 1, 1991).

E. Energy Impacts

No significant increases in electricity consumption are expected as

a result of the proposed standards. Natural gas consumption is expected to increase at six of the smelters with blast furnace configurations as a result of installing afterburners or increasing afterburner temperatures. The total increase in natural gas consumption at these smelters is expected to be about 3.7 million cubic meters (130 million cubic feet) per year.

F. Cost Impacts

The estimated nationwide capital and annualized costs of the proposed standards would be \$2,700,000 and \$2,600,000, respectively. These costs were estimated for all 23 smelters, including those that are currently shut down, and include costs for monitoring, recordkeeping, and reporting.

The estimated capital costs of reducing organic HAP emissions under the proposed standards would be \$1,100,000. Estimated annualized costs would be \$620,000. Ten smelters would be impacted. For the blast-furnace-only configuration, costs incurred would be for the installation and operation of new afterburners at four smelters and increased natural gas consumption at two smelters. For the collocated reverberatory/blast furnace configuration, costs incurred would be for the retrofit of additional ductwork to achieve gas stream blending at four smelters.

The estimated capital and annualized costs of reducing metal HAP emissions would be \$240,000 and \$110,000, respectively. These costs would be distributed over an estimated 14 smelters. The capital costs would be for 1 smelter to upgrade its process fugitive emission controls, and for that smelter and 13 others to upgrade their fugitive dust emission controls. Upgrades would be in the form of improved housekeeping, including the purchase of vacuum sweepers by four smelters. Because all smelters currently operate at the level of the proposed standard for metal HAP's, no anticipated reductions or costs are associated with the control of metal HAP's from process sources.

No capital costs to reduce HCl/Cl₂ emissions would be incurred under the proposed standards if all smelters chose to control HCl/Cl₂ emissions through fluxing. The estimated annualized cost would be \$160,000, distributed over six smelters, for the purchase of additional fluxing agents. If a smelter chose to install a scrubber to control HCl/Cl₂ emissions, the approximate capital cost would be \$1,700,000 and the annualized cost would be \$850,000 for a reverberatory furnace with a production capacity of 50,000 Mg/yr.

Enhanced monitoring and recordkeeping and reporting costs would be incurred by all 23 smelters. These costs are estimated to be \$73,000 per smelter per year and the total national cost is estimated to be \$1,700,000 per year. The only capital costs would be for COM's, for

which the total national cost is estimated to be \$1,400,000. The recordkeeping and monitoring cost estimate includes the costs for the emission tests needed to demonstrate compliance. Only the tests for lead emissions from process fugitive sources and building ventilation systems are annual tests, so testing costs would be lower after the initial compliance demonstration.

G. Economic Impacts

The Economic Impact Analysis evaluated: (1) The ability of facilities to absorb annual control costs and obtain financing for capital control costs, and (2) the market response to the regulation--specifically, impacts on industry-wide output, employment, and revenue. The analysis was performed on all 23 facilities in the industry, including facilities that have shut down operations indefinitely but have not closed permanently.

Because lead is an internationally traded commodity whose price is determined by international market factors, secondary lead producers have little influence on price. Therefore, the economic analysis assumed that no price increase would occur and control costs would have to be absorbed by affected facilities. Based on discussions with industry experts, EPA formulated guidelines for estimating when a facility would be significantly impacted. A facility would be significantly impacted if either: (1) Total annualized control costs result in more than a 1-percent increase over baseline cost of production, or (2) capital control costs exceed 5 percent of baseline total assets (company-wide) and post-regulation total liabilities exceed two-thirds of baseline total assets if the capital control costs are financed with debt.

The analysis indicates that up to 11 facilities would be significantly impacted, depending on the level of the standards and the amount of continuous monitoring required. Almost all of the significantly impacted facilities are owned by small businesses because of economies of scale and limited access to capital resources.

Implementation of emission controls equal to the MACT floor, the basis for the proposed rule, results in significant impacts to two facilities that are currently in operation. Three other facilities that are currently shut down would also be impacted significantly. If control levels are imposed at levels above the MACT floor, seven facilities are significantly impacted. Of the seven facilities, four sources are currently in operation and three are shut down. When continuous opacity monitoring is required in addition to the MACT floor, one additional source that is currently shut down is significantly impacted.

If the MACT floor is considered with continuous opacity and THC

monitoring, nine facilities are significantly impacted. Of the nine facilities, three sources are currently in operation and six are shut down. If continuous monitoring for HCl is added, 11 facilities would be significantly impacted. Of the 11 facilities, four sources are currently in operation and seven are shut down.

Under any of the regulatory alternatives considered, industry employment and output is reduced by less than 1-percent. At current market conditions (December 1993), no closures are expected as a consequence of the regulation. If the price of lead decreases to levels observed over the past year, the possibility of closure increases for two currently operating major sources. Under any of the regulatory alternatives, all smelters currently shut down have additional incentive to not reopen.

VI. Rationale for Selecting the Proposed Standards

This section describes the rationale for the decisions made by the Administrator in selecting the proposed standards.

A. Selection of Pollutants and Source Category

Secondary lead smelters emit several of the 189 HAP's listed in section 112(b) of the Act. Organic HAP's emitted by secondary lead smelters include carbon disulfide, 1,3-butadiene, methyl chloride, benzene, styrene, toluene, formaldehyde, and naphthalene. Metal HAP's emitted include primarily compounds of lead, antimony, and arsenic, with lesser quantities of compounds of chromium, nickel, manganese, mercury, and cadmium. In addition, secondary lead smelters emit the HAP's HCl and Cl₂. Criteria pollutants emitted include lead, PM, SO₂, CO, and hydrocarbons.

Approximately two-thirds of the secondary lead smelters in the United States are major sources of HAP's, based on potential-to-emit estimates that take into account air pollution control measures currently in place at each smelter. Furthermore, as described in section II.D of this preamble, the Administrator has initially determined that secondary lead smelters that are area sources of HAP's present a threat of adverse effects to human health sufficient to support adding secondary lead smelters to the list of area source categories subject to regulation under section 112(c)(3) of the Act. Consequently, the standards being proposed would apply to all new and existing secondary lead smelters regardless of source (major or area) designation.

The emission, equipment, and work practice standards being proposed today would substantially limit emissions of metal HAP's, organic HAP's, HCl, and Cl₂ from secondary lead smelters. The standards

being proposed to address metal and organic HAP emissions establish limits for surrogates rather than for individual compounds.

Establishing emission limits for each of the numerous metal and organic HAP compounds emitted from secondary lead smelters is considered impractical because measuring each compound would be too costly and would pose unreasonable compliance and monitoring costs and would achieve little, if any, emission reduction above the surrogate pollutant approach. On the other hand, strong correlations exist between emissions of the selected surrogate pollutants and emissions of the pollutant classes they represent. In addition, the technologies identified for the control of HAP's have equivalent performance on the selected surrogates. Therefore, emissions standards requiring good control of the selected surrogates will also achieve good control of HAP's.

Candidate surrogates for the mix of metal HAP's present, including lead compounds, are PM and lead, both of which are criteria pollutants. The selected surrogate is lead. Compounds of lead are the most prevalent metal HAP contained in secondary lead smelter emissions. In addition, lead is concentrated, along with metal HAP's, in the smaller size fractions of PM, which are the most difficult to control. Therefore, controlling lead will also control metal HAP's. Available data on the performance of baghouses used to control particulate emissions at secondary lead smelters indicate a much stronger correlation of metal HAP's with lead emissions than with total PM (Docket No. A-92-43, Item Nos. II-A-1, II-A-2, II-A-3, II-I-1, and II-I-9). Therefore, lead is a better surrogate than PM. Lastly, there is a validated test method (EPA reference method 12) for the determination of inorganic lead emissions from stationary sources.

The surrogate pollutant chosen for organic HAP's is THC. There are much data to demonstrate that the destruction of THC through incineration is strongly correlated with the destruction of organic HAP compounds (Docket No. A-92-43, Item No. II-I-27, 56 FR 7155-56 (February 21, 1991)). In addition, THC is easily measured and can be monitored. Carbon monoxide, another indicator of destruction efficiency for organic compounds, was considered but dismissed. It does not correlate as well as THC with destruction of organic HAP compounds. No surrogates are needed for HCl and Cl₂ because they can be measured directly.

The proposed regulation does not establish explicit limits for dioxin/furan emissions from secondary lead smelters for several reasons. First, secondary lead smelters emit very small quantities of dioxin. Cumulative annual emissions for the entire industry are estimated to be only 1.6 grams of dioxin/furan, expressed in toxic equivalents (Docket No. A-92-43, Item No. II-B-35). Emission rates from the other two smelters (a reverberatory/blast smelter and a rotary

smelter) were an order of magnitude lower (Docket No. A-92-43, Item Nos. II-A-1 and II-A-3). Second, the Agency believes that the emission controls necessary to achieve the emission limitations associated with this proposed standard would reduce dioxin/furan emissions, particularly from blast furnaces. Finally, any risks associated with dioxin will be addressed in the residual risk evaluation required within eight years of promulgation of the standard pursuant to section 112(f) of the Act.

The Agency currently is in the process of revising its assessment of the risks associated with the exposure to dioxin. The EPA requests comment whether additional action is necessary to reduce dioxin emissions from secondary lead smelters.

Facilities that solely melt scrap or refined lead for use in specific molded or fabricated products would not be covered by the proposed rule because they do not operate blast, reverberatory, rotary, or electric smelting furnaces and, therefore, have substantially different and lower emissions potential than do secondary lead smelters.

Lead-acid battery manufacturing operations that may be collocated with a secondary lead smelter and primary lead smelters that produce refined lead from ore concentrate would not be covered by the proposed rule because they are listed as separate categories in the list of major sources to be regulated by MACT standards (57 FR 31576) in separate rulemakings.

B. Selection of Affected Sources

The proposed standards apply to three types of emission sources at secondary lead smelters: (1) Process sources, (2) process fugitive sources, and (3) fugitive dust sources.

1. Process Sources

Affected process sources include all furnaces (blast, reverberatory, rotary, or electric) used for smelting lead-bearing scrap or slag. All smelting furnaces are equipped with chimneys, flues, or ductwork that convey exhaust gases from the furnace. These exhaust gases contain varying amounts of organic HAP's, metal HAP's, HCl, and Cl₂

Blast furnaces and collocated reverberatory and blast furnaces have potentially large organic HAP emissions. Therefore, standards are being proposed to limit organic HAP emissions from these furnace configurations. Rotary furnaces, electric furnaces, and reverberatory furnaces not collocated with blast furnaces have relatively low potentials for organic HAP emissions and no standards are being proposed to limit organic HAP emissions from these furnace configurations. The MACT floor for these configurations does not

include add-on controls and the EPA does not believe that there is any justification to be more stringent than the MACT floor because of the small amounts of organic HAP emissions associated with these sources.

Collocated reverberatory and blast furnaces are being regulated as a single source type because a greater level of control is achievable when reverberatory and blast furnaces are collocated than when they are not. Other furnace combinations have not been observed in this industry.

All smelting furnaces have high uncontrolled emissions of metal HAP's. Therefore, emission standards to limit lead emissions (as a surrogate for metal HAP's) that would apply to all smelting furnace types and configurations are being proposed.

All smelting furnaces that process lead-acid batteries are also potential sources of HCl and Cl₂ emissions because of the presence of PVC plastic separators in the furnace feed. The amount of HCl and Cl₂ emitted will vary substantially depending on the quantity of PVC in the feed and whether fluxing agents are added to promote the elimination of chlorides through slagging. However, because all furnace types (except electric furnaces) are potential sources, emission standards are being proposed to limit HCl and Cl₂ emissions from all but electric smelting furnaces.

Electric furnaces are not sources of HCl or Cl₂ emissions because the chlorine present in the feed material is in the form of NaCl or CaCl₂ and cannot be released during smelting. However, the proposed regulation defines electric smelting furnaces to include only those that process reverberatory furnace slag as the lead-bearing material charged to the furnace. No electric furnaces that process other lead-bearing materials are currently in use.

2. Process Fugitive Sources

The following process fugitive sources were selected for regulation: (1) Smelting furnace and dryer charging hoppers and chutes (the furnace and dryer openings into which materials are charged), (2) lead taps and molds, (3) slag taps and molds, (4) refining and alloying kettles, (5) dryer transition pieces, and (6) flue dust agglomerating furnace taps and molds. All process fugitive sources are potential emission points of metal HAP's. Blast furnace charging emissions may also contain organic HAP's if there is leakage of primary exhaust gases into the ventilation hood over the charging chute.

The EPA is not proposing standards for battery breaking equipment (e.g., rotary hammermills, saws, and shears) or lead casting machines. Many smelters do not have add-on controls for metal HAP's for these sources so that the MACT floor is no control. The EPA does not believe there is any justification for controls more stringent than the floor. Battery breakers are small sources of metal HAP emissions [about 18 kilograms (40 pounds) per year per battery breaker] compared to other

sources, and they emit relatively large particles that settle out quickly from the air in the battery breaking area. The proposed NESHAP would require fugitive dust controls in the battery breaking area that would control potential emissions from these settled particles. Casting machines that are used to cast refined lead into ingots are also small sources of metal HAP emissions because the molten lead in the molds is below the fuming temperature of lead. Therefore, casting machines are not included in the proposed regulation.

3. Fugitive Dust Sources

Fugitive dust sources selected for regulation are the following:

(1) The battery breaking area, (2) the materials storage and handling area (including, but not limited to, areas in which slag and flue dust are stored), (3) the smelting furnace area, (4) the refining and casting area, and (5) plant yards and roadways. Fugitive dust sources are potential emission sources of metal HAP's, but not organic HAP's or HCl and Cl₂. Therefore, the five listed sources will be covered by the proposed regulation.

C. Selection of Basis and Level for the Proposed Standards for New and Existing Sources

Section 112(d)(3)(B) of the Act requires that the EPA set standards no less stringent than "the average emission limitation achieved by the best performing 5 sources" for categories with fewer than 30 sources. Floor levels of control were determined for each of the affected source types under consideration for regulation. Source types are process sources, process fugitive sources, and fugitive dust sources. For process fugitive sources and fugitive dust sources, which are similar in character and emissions potential across all secondary lead smelters, the entire population of secondary lead smelters was considered in determining MACT floor levels of control. For process sources, specifically smelting furnaces, smelters were differentiated and divided into configurations based on the smelting furnace types used at individual smelters. This was done because smelting furnaces differ substantially, based on configuration, in both emissions potential (mix and amounts) and achievable control levels for organic HAP's. Section 112(d)(1) of the Act gives the Administrator the authority to distinguish among classes, types, and sizes of sources within a category when establishing standards.

Because the secondary lead smelter category comprises fewer than 30 sources, the floor level of control selected for existing sources is based on the median level of control achieved by the best-performing five sources. That is, the floor level of control reflects the control technology in use by the source positioned third (the median) among the best-performing five. The median was selected as the MACT floor, rather

than the mean, because the MACT floor is based on the control technology used and the mean cannot be determined. The floor for new sources reflects the control technology in use by the best-controlled source in the category. Emission limits were then selected based on the performance continuously achievable by the proposed MACT technology.

1. Selection of MACT for Process Sources

Separate MACT floors were determined for the following smelting furnace configurations: (1) Collocated reverberatory and blast furnaces, (2) blast furnaces not collocated with a reverberatory furnace, (3) reverberatory or rotary furnaces not collocated with a blast furnace, and (4) electric furnaces. Only smelters with a similar furnace configuration were used to establish the MACT floor level of control for new and existing furnaces within each configuration. The four configurations were selected based on differences in potential emissions and control options among the configurations.

With one exception--the blast-furnace-only configuration--the MACT floor level of control was the only option considered because no options more stringent than the MACT floor are known. For the blast-furnace-only configuration, two options--the floor and one more stringent than the floor--were considered.

The emission reductions and cost impacts of the proposed MACT floor and more stringent options are presented in more detail in chapters 5 and 6 of the BID, respectively.

a. Reverberatory/Blast Furnace Configuration. Control measures currently in use to control furnace emissions at collocated reverberatory/blast furnace facilities are combinations of afterburners, gas stream blending, baghouses, wet scrubbers, and fluxing additions.

Afterburners used to control only blast furnace emissions are capable of achieving about 90-percent control of organic HAP's, THC, and CO. Gas stream blending consists of mixing blast furnace gases with hotter and larger volume reverberatory furnace gases in a chamber for incineration. Gas stream blending provides more cost-effective control of organic HAP's than do afterburners by utilizing the large volume of hot (greater than 1,000 deg.C) exhaust produced by the reverberatory furnace. Greater than 99-percent control of THC (the surrogate for organic HAP's) and 98-percent control of CO have been demonstrated (Docket No. A-92-43, Item No. II-A-3).

Baghouses are used to control PM and lead. Properly operated and maintained, baghouses are capable of achieving greater than 99-percent control of PM and about 98-percent control of lead and other metal HAP compounds (Docket No. A-92-43, Items II-A-1, II-A-2, II-A-3). Wet scrubbers, primarily in place to control SO₂, are capable of providing 99-percent control of HCl/C₂ (Docket No. A-92-43, Item No. II-A-3). The addition of soda ash or limestone fluxing agents to

the furnace feed to enhance the removal of chlorides through slagging can achieve HCl/Cl₂ control equivalent to that of wet scrubbing (Docket No. A-92-43, Items II-A-1, II-A-2).

Nine smelters operate reverberatory/blast configurations. The best-controlled source and best-performing five sources all blend gas streams to control organic HAP emissions, use baghouses to control metal HAP emissions, and either scrub or flux to control HCl/Cl₂ emissions. Consequently, the combination of these controls constitutes MACT floors for both new sources and existing sources.

Because there are no control options available for consideration more stringent than the MACT floor controls for new or existing sources, the technological basis selected for the proposed standards for collocated reverberatory/blast furnaces is gas stream blending to control organic HAP's, a baghouse to control metal HAP's, and a scrubber or flux addition to control HCl/Cl₂.

Under this selection of MACT for existing sources, six smelters would have to upgrade their air pollution controls to some degree to meet the proposed MACT. Physical upgrades would include the retrofit of additional ductwork at five smelters to blend the blast and reverberatory furnace gas stream to achieve incineration of organic HAP's in the blast furnace emissions. Other upgrades required at four smelters include the addition of fluxing agents to the reverberatory furnace feed for HCl/Cl₂ control.

Total estimated capital costs for upgrades at the smelters requiring additional ductwork would be about \$330,000. The costs for purchasing additional fluxing agents were included as annual costs rather than capital costs. Total annualized costs for all six impacted smelters would be about \$120,000--\$40,000 for capital recovery and about \$80,000 for the purchase of fluxing agents (soda ash or limestone) at four smelters that do not have SO₂ scrubbers.

Installing the proposed MACT floor controls at smelters with reverberatory/blast furnaces would reduce organic HAP emissions by 640 Mg/yr (700 tpy) and HCl/Cl₂ emissions by 360 Mg/yr (400 tpy). Emissions of THC and CO would also be reduced by about 2,500 Mg/yr (2,800 tpy) and 47,000 Mg/yr (52,000 tpy), respectively. All of these smelters currently have baghouses, so there would be no reduction in metal HAP emissions from process sources and no associated cost impacts.

b. Blast Furnace Configuration. Control measures currently in use to control furnace emissions at blast furnace-only facilities include afterburners, baghouses, wet scrubbers, and fluxing. Although installed primarily for the combustion of CO, afterburners also provide varying degrees of control for organic HAP's. The most important variable in afterburner performance, that is, the ability to combust and destroy organics, is temperature, although residence time and turbulence are

also important. Temperature, however, is the most important variable, with higher levels of destruction achieved at higher temperatures.

The operating temperature of the best-performing afterburner in this furnace configuration is 870 deg.C (1,600 deg.F) (Docket No. A-92-43, Item No. II-D-4), which represents an estimated 98-percent organic HAP control (Docket No. A-92-43, Item II-B-31). The average temperature of the five best-performing afterburners operating at the highest temperatures is 700 deg.C (1,300 deg.F), which represents an estimated 84-percent organic HAP control. Baghouses, wet scrubbers, and fluxing provide the same levels of control for metal HAP's (98 percent) and HCl/Cl₂ (99 percent) for blast furnaces as for collocated reverberatory/blast furnaces.

The blast furnace-only configuration encompasses 13 blast furnaces at 8 smelters. The best-controlled blast furnace is controlled by an afterburner at 870 deg.C (1,600 deg.F) to control organic HAP's and a baghouse to control metal HAP's, and performs fluxing with soda ash or limestone or operates an SO₂ scrubber to control HCl/Cl₂ emissions. The combination of these controls constitutes the proposed MACT for new sources.

Seven blast furnaces are controlled by an afterburner to control organic HAP's and a baghouse to control metal HAP's, and perform fluxing or use a scrubber to control HCl/Cl₂. The average temperature of the five afterburners operated at the highest temperatures is 700 deg.C (1,300 deg.F). The proposed MACT floor for existing sources is, therefore, an afterburner operated at 700 deg.C (1,300 deg.F), a baghouse, and fluxing.

To comply with a standard based on the MACT floor for existing sources, five smelters would have to upgrade their air pollution controls. Physical upgrades would include the installation of afterburners at three smelters. Other upgrades required at four smelters would be increased afterburner temperature, which would require an increase in natural gas consumption. Total estimated capital costs for upgrades at the smelters requiring new afterburners would be about \$810,000. Total annualized costs would be \$590,000--\$120,000 for capital recovery and \$470,000 for increased fuel costs and other operating expenses to operate all afterburners at 700 deg.C (1,300 deg.F).

Installing the proposed MACT floor controls at all existing blast furnace facilities would reduce organic HAP emissions by 580 Mg/yr (640 tpy). All blast furnace facilities currently have baghouses and perform fluxing, so there would be no reductions in metal HAP or HCl/Cl₂ emissions and no associated cost impacts. Emissions of THC and CO would also be reduced by about 2,700 Mg/yr (3,000 tpy) and 32,000 Mg/yr (35,000 tpy), respectively.

There is one control option more stringent than the controls in the

floor for existing sources. That option is to raise the afterburner temperature from 700 to 870 deg.C (1,300 to 1,600 deg.F)--effectively adopting the same controls for existing sources as the new source MACT. The EPA evaluated the incremental impacts of selecting an afterburner at 870 deg.C (1,600 deg.F) as the technological basis for controlling existing sources. Physical upgrades would include the installation of new afterburners at seven smelters, and other upgrades would include increased natural gas consumption at all but one smelter.

Total capital and annualized costs for upgrades at blast furnace smelters would nearly triple under the more stringent option. Estimated total capital costs would increase by \$1,700,000 to \$2,300,000 (at 870 deg.C) relative to the floor level of control, and annualized costs would increase by \$1,100,000 to \$1,700,000. The increased costs would lead to an increase in adverse economic impacts. Under the more stringent option, 7 blast furnace smelters would be significantly impacted, compared to 5 smelters under the MACT floor option. The two additional smelters that are significantly impacted are operating smelters.

Under the more stringent option, organic HAP emissions at blast furnace smelters would decrease an additional 110 Mg/yr (120 tpy), compared to an emissions reduction of 580 Mg/yr (640 tpy) under a standard based on the floor. Emissions of THC and CO would decrease by an additional 500 Mg/yr (550 tpy) and 21,000 Mg/yr (23,000 tpy), respectively, compared to initial reductions of 2,700 Mg/yr and 32,000 Mg/yr under a standard based on the floor. The incremental cost-effectiveness of organic HAP reductions would be \$10,000/Mg (\$9,100/ton) under the more stringent option.

In light of the cost and economic impacts and the HAP reductions achievable, the EPA has concluded (subject to comment) that adoption of this more stringent (above the MACT floor) option as the basis for standards for existing blast furnace smelters is unreasonable. Therefore, the technological basis for the proposed standards for existing blast furnaces is an afterburner at 700 deg.C (1,300 deg.F), a baghouse, and fluxing or a scrubber.

The EPA is aware, however, that this proposal permits organic HAP emissions at the eight facilities with blast furnace-only configurations to remain significantly higher than the organic HAP emissions resulting from other configurations. Further, the EPA recognizes that additional reductions are technically feasible at these locations if the afterburner temperatures are raised. The EPA requests comment on how consideration of the differential impacts and environmental justice should be incorporated in the final MACT determination. The EPA specifically requests comment on the decision to establish proposed standards at the MACT floor for the blast furnace-only smelting configuration.

c. Rotary and Reverberatory Furnace Configurations. Control measures currently in use to control furnace emissions at rotary furnace and reverberatory furnace facilities are baghouses, wet scrubbers, and the addition of fluxing agents. Baghouses and wet scrubbers provide the same levels of control for metal HAP's (98 percent) and HCl/Cl₂ (99 percent), respectively, as with other furnace configurations. Soda ash and limestone are added to all rotary furnaces and some reverberatory furnaces as fluxing agents, providing HCl/Cl₂ control equivalent to that of scrubbing.

The high exhaust temperature maintained in rotary and reverberatory furnaces (greater than 1,000 deg.C) ensures nearly complete destruction of any organic HAP's present. Consequently, no additional control for organic HAP's is necessary.

Six smelters operate either rotary or reverberatory furnace configurations. The best-controlled furnace and best-performing five furnaces use a baghouse to control metal HAP's and a scrubber or fluxing to control HCl/Cl₂. Consequently, the combination of these controls constitutes the MACT floors for both new source and existing source. Because there are no control options available for consideration more stringent than the controls in the floors for new or existing sources, the technological basis selected for the proposed standards for rotary and reverberatory furnaces is a baghouse for controlling metal HAP's and a scrubber or flux addition for controlling HCl/Cl₂.

Under this selection of MACT for new and existing sources, two smelters would have to upgrade their air pollution controls to some degree by increasing the amount of fluxing agents added to their furnaces. No capital costs would be incurred; total annualized costs would be \$76,000 for the additional fluxing agents at the two smelters. Hydrochloric acid and Cl₂ emissions would be reduced by about 350 Mg/yr (390 tpy). There would be no reduction in metal HAP or organic HAP emissions and no associated cost impacts. All six smelters operating this configuration currently have baghouses for PM, lead, and other metals control. Add-on controls for organic HAP emissions are unnecessary because neither furnace type emits organic HAP's.

d. Electric Furnace Configuration. There is currently only one electric furnace in use in the secondary lead smelting source category. It is used to process slag generated at three reverberatory furnace-only smelters. The furnace is equipped with a baghouse to control PM and lead emissions. Neither organic HAP's nor HCl/Cl₂ are emitted from this furnace because it processes only slag that is relatively free of organic matter and available chlorine. Consequently, a baghouse constitutes the floor for both new source and existing source MACT for controlling metal HAP's. Because there are no available control options more stringent than a baghouse, the proposed MACT for new and existing

sources is a baghouse. Because this furnace already has a baghouse, no upgrades in air pollution controls are needed and there would be no emission reductions or cost impacts associated with the proposed standard.

2. Selection of MACT for Process Fugitive Sources

Process fugitive sources are similar in emissions characteristics and control technology across all secondary lead smelters, regardless of smelting furnace configuration. Therefore, there was no need to distinguish among process furnace configurations when developing the standards for process fugitive sources. The entire population of secondary lead smelters was used in determining MACT floor levels of control for new and existing sources.

The four types of process fugitive sources being regulated are smelting furnace charging and tapping locations, flue dust agglomerating furnaces, refining kettles, and dryers. All of these are sources of metal HAP's and are typically controlled by hoods ventilated to baghouses.

The proposed equipment specifications for the design and operation of capture hooding and ventilation for process fugitive sources are adapted from the Occupational Safety and Health Administration's (OSHA's) "Cooperative Assessment Program Manual for the Secondary Lead Smelter Industry" (Docket No. A-92-43, Item No. II-I-16). The OSHA manual specifies that process fugitive sources should be controlled by an enclosure-type hood that is ventilated so that a minimum face velocity is achieved. Face velocity is the velocity at which air is drawn into a hood and, along with hood type, is a primary factor in hood capture efficiency. The minimum recommended face velocity varies by source type, but is generally about 110 m/min (350 fpm). These controls represent state-of-the-art ventilation practices to protect workers by promoting effective capture and ventilation of process fugitive emissions.

The OSHA manual was developed in 1983 through a cooperative effort by government, industry, and labor in response to the occupational health standard for lead (29 CFR 1910.1025), which requires that employers in the secondary lead smelting industry implement controls to reduce employee exposure to lead. The manual was prepared to assist employers and employees in identifying and implementing the best controls that were recognized as technologically feasible.

Based on observations at operating secondary lead smelters, the EPA believes that the capture and ventilation systems installed and operated at secondary lead smelters are designed and operated in accordance with the specifications contained in the OSHA cooperative assessment program manual. These controls consequently establish the MACT floor. Therefore, the EPA is proposing to incorporate these specifications into the proposed MACT for new and existing process

fugitive sources.

a. Smelting Furnace Charging and Tapping. Smelting furnace charging and tapping are sources of metal HAP's. Blast furnace charging can also be a source of organic HAP's. With one exception, all furnace charging and lead tapping and slag tapping locations on 44 smelting furnaces are enclosed in a hood and captured emissions are ventilated to a baghouse for the control of metal HAP's. One blast furnace has no hooding or ventilation on the charging chute. Consequently, the MACT floor for existing sources is hooding and ventilation to a baghouse for the control of metal HAP's. There are no control options above the MACT floor, so the floor is the proposed MACT for both existing and new sources. The OSHA manual recommends an enclosure-type hood with a minimum face velocity of 110 m/min (350 fpm) for these emission points. The manual also recommends a similar hood for the transition piece on rotary furnaces.

The proposed MACT to control organic HAP emissions from blast furnace charging is a hood over the charging chute with a ventilation flow rate that is properly balanced against the primary exhaust flow rate from the furnace. The two flow rates are balanced to minimize the escape of primary exhausts and organic HAP's to the furnace charging hood.

b. Agglomerating Furnaces. Agglomerating furnaces are sources of metal HAP's. They are used at nine smelters and all are hooded and ventilated to a baghouse. Therefore, the MACT floor for existing sources is a hood with ventilation to a baghouse. There are no control options above the MACT floor, so the MACT floor is the basis for the proposed MACT for both new and existing sources. The OSHA manual recommends an enclosure-type hood with a minimum face velocity of 110 m/min (350 fpm).

c. Refining Kettles. Refining kettles are sources of metal HAP's. There are about 170 refining kettles and they are hooded and ventilated to baghouses at all but three smelters; three smelters use wet scrubbers instead of baghouses. Baghouses typically offer greater control of metal HAP's than wet scrubbers. Therefore, the MACT floor for existing sources is a hood and ventilation to a baghouse. There are no control options above the MACT floor, so the MACT floor is the basis for the proposed MACT for both new and existing sources. The OSHA manual recommends enclosure-type hoods with minimum face velocities of 75 m/min (250 fpm) and flow rates of at least $60 \text{ m}^3/\text{min per m}^2$ (200 acfm/ft^2) of the surface area of the kettle's contents.

d. Dryers. Dryers are sources of metal HAP's. They are currently in use at six smelters to remove moisture from materials just prior to charging them to reverberatory smelting furnaces. Each dryer has a transition piece between the dryer cylinder and the furnace feed chute. These transition pieces on all dryers are hooded and ventilated to a

baghouse. The MACT floor for both existing and new dryers is, therefore, hoods over the transition pieces with ventilation to a baghouse. There are no control options above the MACT floor, so the MACT floor is the basis for the proposed MACT for both new and existing sources.

The OSHA manual does not contain recommendations for dryers, but the transition piece on a dryer is analogous to the transition piece on a rotary smelting furnace, for which the manual recommends an enclosure-type hood with a face velocity of at least 110 m/min (350 fpm). The proposed MACT includes these specifications.

3. Impacts of Proposed Standards for Process Fugitive Sources

There are no controls more stringent than those established by the MACT floor described above for process fugitive sources. Therefore, the EPA is proposing standards for process fugitive sources that correspond to the MACT floor.

One smelter would be required to upgrade its process fugitive controls by adding a hood over its blast furnace charging chute. The estimated capital and annualized costs to enclose and ventilate this one source would be \$47,000 and \$4,400, respectively. The estimated pollutant reduction would be 26 Mg/yr (29 tpy) of metal HAP's.

Another smelter would be required to balance existing ventilation air at the blast furnace charging chute to preclude the inadvertent collection of process gases that contain organic HAP's. The potential emission reductions at the one smelter at which organic HAP process emissions were detected in the charging hood exhaust air would be about 50 Mg/yr (55 tpy).

The EPA has no data on the performance of the wet scrubbers being used to control the refining kettle emissions at three smelters. The MACT floor for refining kettles is hooding and ventilation to a baghouse, and baghouses are generally more efficient than scrubbers in controlling metal HAP's. However, refining kettles are very similar to scrap melting operations at battery manufacturing facilities. Data from the latter that are controlled by wet scrubbers indicate that refining kettles controlled by wet scrubbers should be able to achieve a lead limit that is based on the performance of a baghouse (Docket No. A-92-43, Item No. II-A-8). Therefore, it should not be necessary to replace the existing wet scrubbers with baghouses and there should be no associated cost impacts.

4. Selection of MACT for Fugitive Dust Sources

Fugitive dust sources are similar in emissions characteristics and control technology for all smelters, regardless of smelting furnace configuration. Therefore, there was no need to distinguish among furnace configurations when developing the standards for fugitive dust sources. The entire population of 23 secondary lead smelters was used to determine the MACT floors for new and existing fugitive dust

sources.

The four areas of fugitive dust sources being regulated are battery breaking areas, furnace and refining and casting areas, materials storage and handling areas, and plant roadways.

Controls for fugitive dust sources include: (1) Paving all areas subject to vehicle traffic to facilitate the removal of accumulated dust, (2) periodic cleaning of all paved areas to remove deposited dust and prevent its re-entrainment or transfer to other areas by vehicle traffic, (3) vehicle washes at exits from materials storage and handling areas to prevent carry-out of metal HAP-bearing residues and dust, (4) wetting or use of chemical surfactants, binding agents, or sealers on storage piles coupled with partial or total enclosures to limit wind erosion and the generation of dust associated with materials storage and handling, and (5) ventilating total enclosures, where used, to a baghouse or equivalent device to capture airborne dust.

Total enclosure of a fugitive dust source and ventilation of the enclosure to a control device may at first appear to be the most effective means of controlling fugitive dust emissions. However, the EPA has determined from observations of operating smelters and a technical analysis of fugitive dust control measures applicable to this source category that partial enclosures with appropriate wetting and pavement cleaning cost much less and are equally effective in controlling fugitive dust emissions when coupled with monitoring and recordkeeping to ensure these activities are performed (Docket No. A-92-43, Item No. II-B-28).

It should be noted that existing Clean Water Act effluent limitation guidelines already provide discharge allowances, based on technology-based controls, for pollutants in the wastewater generated from facility wash down and truck washing. This proposed regulation should not require any amendments to those standards. (See 40 CFR 421, subpart M).

a. Battery Breaking Area. At least nine smelters control fugitive dust emissions from the battery breaking area. Controls include partial or total enclosures, vacuum or powerwashing systems, and the wetting of storage piles. Therefore, these controls are the MACT floor for existing sources. Because there exists no more stringent controls that are demonstrated for the battery breaking area, these floor level controls are the proposed MACT for existing sources and are also the proposed MACT for new sources. An equivalent alternative technology is to totally enclose the area and ventilate the entire building or enclosure volume to a baghouse.

b. Furnace and Lead Refining and Casting Areas. At least 12 smelters either totally enclose the furnace and lead refining and casting areas and ventilate the enclosure to a baghouse, or partially enclose this area on at least three sides and vacuum or powerwash the

pavement. The remaining smelters use some, but not all, of these techniques. Therefore, partial enclosure coupled with pavement cleaning (vacuuming or powerwashing) or total enclosure ventilated to a baghouse is the MACT floor for existing sources. Because no more stringent controls are available, these floor level controls are the proposed MACT for existing sources and are also the proposed MACT for new sources.

c. Materials Storage and Handling Areas. At least 12 smelters have paved the materials storage and handling areas, operate vehicle washes at exits from these areas, and either totally enclose the area and ventilate the enclosure to a baghouse or partially enclose the storage piles and use wetting or other dust suppression techniques on the storage piles. The remaining smelters use some, but not all, of these techniques. Therefore, vehicle washes, paving, and either partial enclosure coupled with wet suppression or total enclosure and a baghouse is the MACT floor for existing sources. Because no more stringent controls are available, these floor level controls are the proposed MACT for existing sources and also the proposed MACT for new sources.

d. Roadways. At least 16 smelters have paved their roadways and periodically clean the pavement by vacuuming or powerwashing. Therefore, these controls are the MACT floor for existing sources. Because no more stringent controls are available, these floor level controls are the proposed MACT for existing sources and also the proposed MACT for new sources.

5. Impacts of Proposed Standards for Fugitive Dust Sources

The EPA is proposing that the MACT floors should serve as the basis of the proposed standards for fugitive dust sources because there are no available control technologies more stringent than the MACT floors. Each smelter would be required to develop an SOP manual that describes how it will use MACT controls to limit fugitive dust emissions and operate according to the manual at all times.

Thirteen smelters would be required to upgrade their fugitive dust controls and practices to meet the MACT level of control in the proposed standards. Four smelters would need to purchase mobile vacuum systems and allocate additional labor hours to operate them. Nine smelters that already operate vacuums would need to increase the operation of the vacuums to clean additional areas not currently vacuumed or begin implementing some form of dust suppression practices in the materials storage area.

The capital costs of adopting the proposed standards would be about \$190,000 for the purchase of vacuums at four smelters. The total annual cost would be \$110,000, which includes the annualized cost of the new vacuums, operating labor for additional vacuuming, and the cost of additional water (including treatment) for wet suppression. The

estimated emission reductions would be 23 Mg/yr (25 tpy) of metal HAP's. The dust collected by the additional vacuum sweepers and other fugitive dust controls would be recycled back into the smelting furnace to recover the lead content. Therefore, there would be no significant costs incurred for the management of the captured fugitive dust.

D. Selection of the Format for the Proposed Standards

Several formats were considered to implement the control techniques selected as the basis for the proposed standards. These include emission standards in a variety of format options, as well as design, equipment, work practice, and operational standards. Section 112(d) of the Act requires the Administrator to prescribe emission standards for HAP control unless, in the Administrator's judgement, it is not feasible to prescribe or enforce emission standards.

Section 112(h) defines two conditions under which it is not feasible to prescribe or enforce emission standards:

- (1) If the HAP cannot be emitted through a conveyance device designed and constructed to emit or capture the HAP, or
- (2) if the application of measurement methodology to a particular class of sources is not practicable because of technological or economic limitations. If it is not feasible to prescribe or enforce emission standards, then the Administrator may instead promulgate equipment, work practice, design, or operational standards, or a combination thereof.

Format options for numerical emission standards or limits include mass concentration (mass per unit volume), volume concentration (volume per unit volume), mass emission rate (mass per unit time), process emission rate (mass per unit of production or other process parameter), and percent reduction.

1. Process Emission Sources

The EPA is proposing numerical emission standards, expressed as mass or volume concentrations, for lead, THC, and HCl/Cl₂ emissions from smelting furnaces. As noted in section II.D of this preamble, lead and THC have been selected as surrogates for metal HAP's and organic HAP's, respectively.

Baghouses constitute the technological basis for the MACT standards proposed to limit metal HAP emissions from smelting furnaces. Because of the physical mechanism by which baghouses operate, they characteristically achieve a constant outlet concentration independent of the inlet concentration or loading. Tempering air is introduced before the baghouse at some smelters to cool furnace process emissions and control baghouse temperature, but this dilution prior to the baghouse does not affect outlet concentrations or baghouse performance. Dilution with ambient air between the control device and an emission

monitoring or testing point is prohibited under section 63.4 of the General Provisions.

Other format options considered included mass rate (kg/hr), a production-based emission rate (kg/Mg of furnace charge), and percent reduction. The EPA is not proposing the mass emission rate format (kg/hr) because it cannot account for differences in actual emission rates between different size smelting furnaces. The production-based emission rate format is not proposed because production rate is difficult to measure over short periods and the mass emission rate from a baghouse may not correlate well with production rate during an emissions test. The EPA is not proposing the percent reduction format because baghouses are constant outlet devices, causing removal efficiency to vary with inlet loading. In addition, this format would require simultaneous testing at inlet and outlet locations, which would subject smelters to unnecessary additional testing costs. Consequently, the EPA is proposing a concentration limit for lead reflecting performance of a properly operated baghouse.

The format the EPA is proposing for the THC emission standard is concentration expressed in ppmv as propane, corrected to a constant CO₂ concentration. The correction to a constant CO₂ concentration accounts for any dilution due to blending with process fugitive emission streams prior to discharge to the atmosphere. Alternative formats that were evaluated but not selected were mass emission rate, production-based emission rate, and percent reduction.

The format of the proposed HCl/Cl₂ standard is concentration expressed as mg/dscm and corrected to a constant CO₂ concentration to account for dilution from combined process fugitive streams. Format options examined but not selected for the HCl/Cl₂ emission standard include mass emission rate, production based emission rate, and percent reduction.

For both the THC and HCl/Cl₂ emission standards, the kg/hr mass emission format was not proposed because it does not account appropriately for size differences among smelting furnaces. The EPA is not proposing the production-based emission rate format because of the difficulty in establishing relationships between emissions and production or process parameters during the short time period of an emissions test. The percent reduction format is not proposed because there is often no suitable inlet location for testing. In addition, even if a suitable test location were available, this format requires simultaneous inlet and outlet testing, which would subject smelters to unnecessary additional testing costs.

The measured THC and HCl/Cl₂ concentrations would be corrected to a constant CO₂ concentration of 4 percent to account for dilution from tempering air or from combined process fugitive emission sources. The measured THC or HCl/Cl₂ concentration would be

multiplied by a correction factor determined by dividing 4 percent CO₂ by the CO₂ measured during the compliance test. If the measured CO₂ concentration is less than 0.4 percent, then a maximum correction factor of 10 would be used. A cap on the correction factor was selected because the relation between the correction factor and the measured CO₂ concentration is non-linear and the correction factor becomes unreasonably high at a CO₂ concentration below 0.4 percent. Furthermore, the proposed method for measuring CO₂ (EPA reference method 3B) is only accurate to within 0.2 percent CO₂.

A cap on the correction factor will not bias compliance calculations towards less stringent enforcement of the THC or HCl/Cl₂ emission standards. It is unlikely, because of the economic cost of moving such a large volume of air, that any smelter would attempt to dilute a process emission stream more than 10 times above the level needed for normal gas stream conditioning.

2. Process Fugitive Sources

The proposed standards for process fugitive emissions would require: (1) Proper capture of process fugitive emissions, and (2) control or destruction of the captured emissions. Equipment specifications (i.e., requirements for hoods with specified face velocities) are proposed to ensure that emissions from process fugitive sources are effectively captured and conveyed into a duct that can be directed to a control device.

Numerical emission limits are being proposed to judge the performance of the control device. A numerical emission limit (mg/dscm) for lead compounds, as a surrogate for metal HAP's, is proposed for the control device that collects the captured process fugitive emissions (e.g., the sanitary baghouse). A mass rate (kg/hr) THC emission limit, as a surrogate for organic HAP's, is being proposed for emissions from blast furnace charging. A concentration THC limit was considered but is inappropriate because of the variability among smelters in the quantity of ventilation air applied at furnace charging locations and the frequent mixing of furnace charging air with ventilation air from other process fugitive sources, such as furnace tapping locations and refining kettles.

The THC limit on blast furnace charging would apply only if the charging process fugitive emissions are discharged through a separate stack from the process emissions. The facility operator would not need to demonstrate compliance with the THC emission standard for process fugitive charging emissions if two conditions exist: (1) The ventilation air from the hood and the process exhaust gases are combined and discharged through a common stack, and (2) compliance with the THC emission limit for process sources is determined downstream from the point at which the charging ventilation air and process source

exhaust are combined. In this case, compliance with the THC limit for process sources would be sufficient to confirm that process emissions are not escaping into the blast furnace charging hood and that all organic HAP emissions are being properly controlled.

3. Fugitive Dust Sources

Work practice standards are being proposed to control fugitive dust sources, as allowed under section 112(h) of the Act. Because of their nature, fugitive dust emissions can not be captured and subsequently discharged through a stack, vent, or other conveyance. Consequently, the use of conventional stack sampling methods are not practical or feasible. The proposed work practice standards would also require the development of a site-specific SOP manual that describes the steps that would be taken to limit fugitive dust emissions from all affected sources. The controls included in the SOP manual must be equivalent to those specified in the proposed regulation.

E. Selection of Emission Limits and Equipment and Work Practice Standards for New and Existing Sources

The proposed emission limits for lead, THC, and HCl/Cl₂ are based on emissions data collected by the EPA primarily through an emission source testing program conducted at several well-controlled secondary lead smelters. The purpose of the testing program was to evaluate the performance of candidate MACT systems and to establish appropriate and corresponding limits.

Prior to the EPA testing program, compliance test data and emissions data from previous EPA studies of the secondary lead smelting industry were collected and reviewed. These data were mostly for criteria pollutants (PM, lead, and SO₂) and included insufficient data for metal HAP's, organic HAP's, or HCl/Cl₂ to accurately estimate baseline emissions and to establish emission limits. Therefore, the EPA testing program was initiated to collect additional data on HAP emissions and on surrogates that are strongly correlated with HAP emissions.

The EPA testing was conducted at six facilities: a collocated reverberatory/blast furnace facility, a rotary furnace-only facility, a reverberatory furnace-only facility, and three blast furnace facilities. These facilities were selected for testing because they were representative of other facilities with similar furnace configurations and because each facility had controls for organic HAP's, metal HAP's, and HCl/Cl₂ that represented the MACT floor controls.

Complete results of the testing program and their analyses are summarized in chapter 3 and appendix A of the BID. The derivation of the proposed emission limits for process and process fugitive sources

is described in more detail in Docket No. A-92-43, Item No. II-B-32.

1. Process Sources

Emission limits for process sources were developed from EPA test data for lead and THC (surrogates for metal HAP's and organic HAP's, respectively) and for HCl/Cl₂.

a. Lead Emission Limit. The proposed lead emission limit was selected primarily on the basis of the results of EPA-sponsored tests of smelting furnaces controlled by well-maintained and well-operated baghouses. The EPA tested three baghouses used to control furnace exhausts from a blast furnace, a combined reverberatory/blast furnace, and a rotary furnace. The baghouse on the blast furnace also treated ventilation air from furnace charging and lead and slag tapping. Three sample runs using EPA reference method 12 were conducted at the outlet of each baghouse to quantify lead emissions.

The average lead concentration from each baghouse ranged from 0.60 to 0.70 mg/dscm (0.00026 to 0.00031 gr/dscf). The average lead concentration for all three baghouses tested (total of nine sample runs) was 0.66 mg/dscm (0.00029 gr/dscf). Individual runs ranged from 0.28 mg/dscm to 1.03 mg/dscm.

A statistical analysis of the variability in the process baghouse data was performed. The analysis inherently accounts for variability in emissions from well-operated and well-maintained baghouses as well as measurement variability. At a 95-percent confidence level, lead emissions measured during subsequent tests of the same baghouses could be as high as 1.3 mg/dscm (0.00057 gr/dscf) with no changes in baghouse operation or maintenance. This suggests that the proposed lead emission limit should be no lower than 1.3 mg/dscm.

Compliance test data collected from other operating smelters were also examined. These data, consisting of 23 individual compliance tests, show lead emissions from process baghouses ranging from 0.04 to 4.7 mg/dscm (0.00002 to 0.0021 gr/dscf) and suggest that the lead emission limit should be higher than 1.3 mg/dscm.

Most of the data are distributed continuously at concentrations less than or equal to 1.6 mg/dscm. The emissions of 1.6 mg/dscm were measured at a new smelter just after it began operating in 1992. Close examination of the data greater than 1.6 mg/dscm and available documentation provided the following comments. Lead emissions of 2.3 mg/dscm were measured in 1988 at a smelter that has since upgraded its air pollution control systems. The other emissions data greater than 2.3 mg/dscm were measured at smelters that are not currently operating. The operation and maintenance quality of the baghouses at these latter smelters cannot, therefore, be determined.

These compliance data indicate that the lead emission limit should be greater than 1.6 mg/dscm but less than 2.3 mg/dscm. Based on this information, the EPA selected an emission limit of 2.0 mg/dscm (0.00087

gr/dscf) as a reasonable value between 1.6 and 2.3 mg/dscm.

A complete and detailed presentation of the baghouse test data, both EPA-collected and industry-supplied, is included in chapter 3 and appendix A of the BID. The analysis performed in selecting the proposed lead emission limit is described in Docket No. A-92-43, Item No. II-B-32.

The compliance data available to the EPA show several smelters with lead emissions substantially lower than 2.0 mg/dscm. These data may lead to the conclusion that the MACT floor emission limit (based on the average emission limitation achieved by the best-performing five sources) should also be substantially lower than 2.0 mg/dscm. However, it should be kept in mind that these compliance data, like the EPA test data, were collected over a brief time period, i.e., three 1-hour runs. Therefore, these data represent only a "snapshot" of the performance of each source and do not necessarily represent an emission level that can be continuously achieved on a long-term basis by the MACT floor control technology.

There are variations in emissions over time that cannot be attributed to variation in any particular furnace or control device operating or maintenance parameter. This is demonstrated, for example, by the variation in the measurements observed over the three runs during a single emissions test. The EPA took this variation in emissions into account when developing the proposed emission limit of 2.0 mg/dscm by examining all of the data that are available for smelting furnaces controlled by well-operated and well-maintained baghouses. The proposed 2.0 mg/dscm emission limit represents the average of the five best-performing sources adjusted for variability and it is continuously achievable on a long-term basis by a smelter controlled by a well-operated and well-maintained baghouse.

b. THC Emission Limits. The EPA measured controlled THC concentrations at the following smelting furnace configurations with corresponding MACT controls: (1) A reverberatory/blast furnace combination controlled by gas stream blending with a combined exhaust temperature of 930 deg.C (1,700 deg.F); (2) a blast furnace controlled by an afterburner operating at 700 deg.C (1,300 deg.F); (3) a rotary furnace with no add-on organic HAP controls; and (4) a reverberatory furnace with no add-on organic HAP controls.

The THC concentration at each smelter was measured using EPA reference method 25A and expressed as an equivalent concentration of propane. The average CO₂ concentration was also measured as part of the gas stream analysis using EPA reference method 3B (40 CFR part 60, appendix A). The results of this testing program are presented in more detail in chapter 3 and appendix A of the BID. The methodology for the selection of the THC limits is described in more detail in Docket No. A-92-43, Item No. II-B-32.

The reverberatory/blast furnace configuration tested by the EPA was controlled by blending the blast and reverberatory furnace gases and then venting the combined stream to an afterburner. The average temperature of the combined stream at the afterburner inlet was 780 deg.C (1,430 deg.F) and the average afterburner outlet temperature was 940 deg.C (1,720 deg.F). The temperature range of the afterburner outlet was 900 deg.C to 980 deg.C (1,650 deg.F to 1,800 deg.F). The residence time of the afterburner was 2.5 seconds. In this configuration, the fuel input to the afterburner was minimal and most of the afterburner temperature increase was probably due to the fuel value of the organic compounds in the blast furnace exhaust.

At the reverberatory/blast furnace smelter, the controlled THC measurements were made over three 3-hour sampling runs. The average THC concentrations for the three runs were 3.0 ppmv, 5.1 ppmv, and 20 ppmv at 4 percent CO₂. The average concentration for all three runs was 9.4 ppmv at 4 percent CO₂. The variation observed in THC concentrations could not be correlated with any variation in the smelting furnaces or combustion conditions during the tests and, therefore, appears to be normal for a well-controlled reverberatory/blast furnace configuration. The THC emissions limit selected for collocated reverberatory/blast furnaces is 20 ppmv (as propane corrected to 4 percent CO₂), which is the highest THC concentration obtained during the individual 3-hour runs. The EPA selected the highest run as the proposed THC limit to account for normal variation in THC emissions.

The blast furnace tested by the EPA was controlled by an afterburner with an average operating temperature of 700 deg.C (1,300 deg.F), although during the tests the temperature varied between 680 and 730 deg.C (1,250 and 1,350 deg.F), with a few short-term spikes to 790 deg.C (1,450 deg.F). The retention time of the afterburner was 2.5 seconds.

At the blast furnace-only smelter, the controlled THC emissions were measured over two 3-hour runs. The average THC concentration in the first run was 300 ppmv (as propane, corrected to 4 percent CO₂) and the average THC concentration during the second run was 360 ppmv. The average afterburner temperature during both runs was 700 deg.C (1,300 deg.F). The 20-percent difference in THC concentration between the two runs could not be attributed to any other smelting furnace or afterburner operating parameter, so the difference is expected to represent normal variation in THC emissions from a well-controlled blast furnace. Based on these tests, the EPA is proposing a THC emissions limit for blast furnace facilities of 360 ppmv (as propane, corrected to 4 percent CO₂), which is the higher concentration from the two 3-hour runs. The EPA selected the higher concentration to account for the normal variability in THC emissions

from a blast furnace controlled by an afterburner operating at 700 deg.C (1,300 deg.F).

No data are available for the THC concentration from a blast furnace controlled by an afterburner operating at 870 deg.C (1,600 deg.F), the proposed MACT for new blast furnaces. However, previous EPA studies have demonstrated that afterburners operating at 870 deg.C and a minimum residence time of 0.75 seconds are capable of achieving a 98-percent destruction efficiency for vent streams with organic concentrations greater than 2,000 ppmv as carbon (about 700 ppmv as propane) (Docket No. A-92-43, Item No. II-B-31). Based on a typical uncontrolled level for THC of 3,500 ppmv as propane, the predicted THC concentration from a blast furnace controlled by an afterburner operating at 870 deg.C (1600 deg.F) is 70 ppmv, at 4 percent CO₂. Therefore, the EPA is proposing a THC limit for new blast furnace facilities of 70 ppmv (as propane, corrected to 4 percent CO₂).

The exhaust temperature from rotary and reverberatory furnaces are comparable to the afterburner outlet temperature of the reverberatory/blast furnace configuration (940 deg.C [1720 deg.F]), so there is nearly complete combustion of organic compounds within the furnace itself and no add-on organic HAP controls are needed. Rotary furnaces are operated in batches lasting from 15 to 24 hours in length. During charging, the furnace temperature is reduced and there are brief (1-hour) periods when the THC level may reach as high as 1,500 ppmv. The THC level drops quickly, however, to less than 10 ppmv when charging is completed and the furnace is brought to normal operating temperature. Reverberatory furnaces are operated at a constant temperature so there are no peaks in organic emissions associated with charging.

None of the rotary furnaces in use at secondary lead smelters have add-on controls for organics or CO. At the rotary furnace smelter tested by the EPA, the THC concentration at the furnace outlet was measured over six complete batch cycles. Each batch cycle lasted from 15 to 24 hours. The THC concentration averaged over the length of each batch cycle ranged from 35 to 170 ppmv as propane, corrected to 4 percent CO₂. The organic HAP emission rate from the rotary smelting furnace was only about 0.5 kg/hr (1 lb/hr), compared to about 3 and 9 kg/hr (7 and 20 lb/hr) of uncontrolled organic HAP emissions from the reverberatory/blast and blast furnaces tested by the EPA, respectively.

The proposed MACT for new and existing rotary furnaces is no add-on control for organic HAP's, which is consistent with the MACT floor for these furnace types. For this reason, and because of the low organic HAP emissions potential from rotary furnaces, no THC emissions limit is being proposed for rotary furnaces.

At the reverberatory furnace smelter tested by the EPA, the THC

concentration was measured at the furnace outlet over one 5-hour run and three 1-hour runs. The average THC concentration, as propane, for each run ranged from 9 to 11 ppmv, at 4 percent CO₂. The average THC concentration was lower than for rotary furnaces because reverberatory furnaces are operated on a continuous basis and the furnace temperature is not lowered during charging. No add-on or process modification organic HAP controls are in use for this furnace type, and the proposed MACT for new and existing reverberatory furnaces is no add-on control. Therefore, no THC emissions limit is being proposed for reverberatory furnaces.

No THC or organic HAP emissions data are available for the electric smelting furnace. However, this furnace processes only slag that is essentially free of organic material, and, therefore, is not likely to be a source of organic HAP emissions. This presumption is confirmed by CO emissions (which are correlated with organic HAP emissions) that are similar to CO emissions from other furnace types that also have low organic HAP emissions (Docket No. A-92-43, Item II-I-22).

The EPA is not proposing organic HAP or THC standards for rotary, reverberatory, and electric smelting furnaces because of the low organic HAP emission potential and because the MACT floor for organic HAP controls is no control for these configurations. Moreover, efficient production of lead in these furnace types requires operating and exhaust temperatures that result in low organic HAP and THC emissions. Relatively low emissions, therefore, should be ensured even in the absence of an emissions standard or a monitoring requirement.

c. HCl and Chlorine Emission Limits. The EPA measured HCl and Cl₂ emissions at the following smelting furnace configurations with corresponding MACT controls: (1) A reverberatory/blast furnace configuration controlled by the addition of soda ash to the blast furnace and by a wet SO₂ scrubber on the combined blast and reverberatory furnace exhausts; (2) a blast furnace controlled by the addition of soda ash to the furnace and a wet SO₂ scrubber; and (3) a rotary furnace controlled by the addition of soda ash to the furnace and a wet SO₂ scrubber. The facilities were selected for testing because they were representative of other facilities with similar furnace configurations and because each smelter was fitted with a wet SO₂ scrubber. At the time the testing program was initiated, wet SO₂ scrubbers were the only HCl/Cl₂ controls being evaluated. The use of fluxing to control HCl/Cl₂ emissions was developed as a result of the EPA testing program.

Emissions of HCl and Cl₂ were measured ahead of and after the scrubber at each smelter in three 1-hour sample runs using EPA reference method 26A. The average CO₂ concentration was also measured as part of the gas stream analysis using EPA reference method 3B (40 CFR part 60 appendix A).

At the blast furnace and rotary furnace smelters, the total HCl/Cl₂ concentrations and emission rates measured ahead of the scrubber were less than 1 mg/dscm (0.0004 gr/dscf) and 0.05 kg/hr (0.1 lb/hr), respectively. At these low levels, no detectable incremental control was observed across the scrubber at either facility.

The reverberatory/blast furnace had a much higher total HCl/Cl₂ concentration and emission rate ahead of the scrubber than either the blast and rotary furnaces: 273 mg/dscm (0.119 gr/dscf) and 12.5 kg/hr (27.6 lb/hr), respectively. About 98 percent of these emissions were HCl and 2 percent were Cl₂. The scrubber was measured to be 99.8-percent effective in reducing total HCl/Cl₂ emissions, and the controlled emissions were less than 1 mg/dscm (0.0004 gr/dscf) and 0.05 kg/hr (0.1 lb/hr).

The EPA believes that the very low uncontrolled HCl emissions observed are due to the use of soda ash and limestone as fluxing agents in the rotary and blast furnaces. Both smelters reported that soda ash or limestone were added primarily to enhance the reduction of lead compounds to lead metal. An analysis performed by the EPA indicates that these fluxing agents will also bind chloride ions in the feed material as NaCl or CaCl₂ salts so that the chlorides are removed in the slag rather than being emitted as HCl or Cl₂. No fluxing agents were added to the reverberatory furnace in the reverberatory/blast configuration tested, and uncontrolled emissions of HCl recorded were substantially higher than those recorded at the blast and rotary furnaces tested with fluxing. However, the wet scrubber was effective in reducing the HCl/Cl₂ emissions from the reverberatory/blast furnace to the same level as observed from the blast and rotary furnaces using fluxing agents.

All three of these furnace types charge the smelting furnace with battery scrap which contains PVC battery plate separators. These separators, when burned, are believed to be the source of the chlorides observed. These chlorides may be removed from the furnace in two ways, either in the form of HCl and Cl₂ in the exhaust gas or they may be bound in the slag and subsequently removed. At both the blast and rotary furnaces, soda ash or limestone are normally charged with the battery scrap. These compounds react with the available chlorides to form salts (NaCl or CaCl₂), which are stable at typical furnace temperatures. These salts are then removed from the furnace during slagging. At the reverberatory/blast furnace combination, neither soda ash nor limestone was charged to the furnace with the battery scrap. Subsequently the chlorides are eliminated from the furnace as HCl and Cl₂ emissions.

Tests were also conducted at a reverberatory furnace at which soda ash is charged to the furnace. These tests indicate that substantial reductions in HCl emissions are possible (greater than 90 percent) by

adding soda ash to this type of furnace. Other facilities operating this type of furnace also add soda ash or limestone to the furnace feed, but the EPA has no emissions data on these furnaces. Because these other facilities normally charge these fluxing agents to the furnaces, it is believed that the addition of these fluxing agents will have no detrimental effect on the final lead product.

A related method called de-sulfurizing also appears effective in eliminating emissions of HCl/Cl₂. The chlorides are eliminated from the furnace in the slag using the same chemical mechanism previously described. In this process, the battery paste and flue dust are reacted with soda ash to remove the sulfur from the feedstock. In this process, unreacted soda ash remains with the resulting paste and is charged into the furnace. Data indicate that resulting HCl emissions are very low, less than 1.5 mg/dscm (Docket No. A-92-43, Item Nos. II-D-18 and II-D-21).

If a facility chooses not to add these fluxing agents to the furnace for process-related reasons, wet scrubbers are capable of achieving the same emission rates for HCl/Cl₂.

It is also important to note that the EPA believes the potential for HCl emissions from this source category will be diminishing over the next several years. As stated earlier, the source of chlorides in the furnace is the PVC separators. Most battery manufacturers are phasing out the use of PVC separators in favor of other materials (Docket No. A-92-43, Item No. II-I-11).

Based on the EPA test results and technical analysis, the EPA is proposing an HCl/Cl₂ limit of 15 mg/dscm, corrected to 4 percent CO₂, for all smelting furnace configurations except the electric smelting furnace. The EPA is proposing an HCl/Cl₂ limit of 15 mg/dscm rather than 1 mg/dscm, which was the emission concentration measured during testing, because EPA reference method 26A has a possible negative bias below an HCl concentration of 30 mg/dscm (59 FR 19306-19323). The margin between 1 mg/dscm and 15 mg/dscm was selected to account for this potential bias. The CO₂ correction factor is to account for dilution if the process emissions at a facility are combined with process fugitive emissions before the point at which compliance with the HCl/Cl₂ limit is determined.

No data are available for HCl or Cl₂ emissions from the electric smelting furnace. However, this furnace processes only reverberatory furnace slag in which chlorides are present in the form of NaCl or CaCl₂ and there is a very low potential for HCl and Cl₂ emissions. Therefore, the EPA is not proposing an HCl or Cl₂ limit for this configuration.

2. Process Fugitive Sources

Equipment specifications are being proposed for process fugitive emission capture systems. Emission limits for lead emissions as a

surrogate for metal HAP's are being proposed for control devices that handle captured process fugitive emissions. Emission limits for THC emissions as a surrogate for organic HAP's are being proposed for control devices that handle the gas streams from blast furnace charging capture systems.

a. Equipment Specifications. The proposed equipment specifications for process fugitive emission capture systems were selected on the basis of observations at operating smelters and the recommendations contained in the OSHA Cooperative Assessment Program Manual for the Secondary Lead Smelter Industry. The proposed equipment specifications are described in more detail under the selection of MACT for process fugitive sources in section VI.C of this preamble.

Observations made during EPA visits to operating smelters indicated that nearly all process fugitive emission sources at all the smelters visited are controlled by enclosure-type hoods consistent with those recommended in the OSHA manual. All of these hoods were ventilated to baghouses or wet scrubbers. Face velocities measured with a hand-held anemometer at one smelter were greater than the minimum face velocities recommended in the OSHA Manual. (Docket No. A-92-43, Item No. II-B-34).

b. Lead Emission Limit. The proposed lead emission limit was selected on the basis of the results of EPA-sponsored tests of process fugitive sources controlled by well-maintained and well-operated baghouses.

The EPA determined baghouse performance for the control of process fugitive metal HAP emissions by measuring baghouse outlet lead concentrations using EPA reference method 12. The EPA tested six baghouses controlling process fugitive sources at three smelters. One baghouse controlled the refining kettles at a blast furnace smelter. Another baghouse controlled the refining kettles and furnace charging and tapping at a rotary furnace smelter. The remaining four baghouses controlled the process fugitive emissions and building ventilation sources at a reverberatory/blast furnace smelter. The average of three runs was used to characterize the performance of each baghouse.

The average lead concentration from each baghouse ranged from 0.33 to 1.82 mg/dscm (0.00015 to 0.00080 gr/dscf). The average lead concentration for all six baghouses tested was 0.83 mg/dscm (0.00036 gr/dscf). The baghouse with the highest lead emission rate appeared to be well operated and well maintained, although removal efficiency was substantially lower because the inlet grain loading was also lower than for the other process fugitive baghouses.

A statistical comparison of the average emission concentrations indicate that there is no significant difference in the controlled lead emissions from the process fugitive baghouses compared to the process baghouses at the 5 percent probability level. A statistical analysis of the normal variability in the process fugitive baghouse data (excluding

the baghouse with the lowest efficiency) predicted at the 95-percent confidence level that lead emissions measured during subsequent tests of the same baghouses could be as high as 2.0 mg/dscm (0.00087 gr/dscf) with no changes in baghouse operation or maintenance. Compliance test data provided to the EPA by smelter operators show lead emissions from process fugitive baghouses ranging from 0.02 to 1.1 mg/dscm (0.00001 to 0.00048 gr/dscf), indicating that all smelters could achieve a lead emission level of 2.0 mg/dscm. This emission level also accommodates the baghouse with the 1.82 mg/dscm outlet concentration measured by the EPA. Based on the outcome of the EPA testing program, the EPA has selected a proposed lead emissions limit of 2.0 mg/dscm (0.00087 gr/dscf) for process fugitive sources.

The EPA baghouse data are presented in chapter 3 and appendix A of the BID. The analysis performed in selecting the proposed lead emission limit is detailed in Docket No. A-92-43, Item No. II-B-32.

c. THC Emission Limit. The proposed THC emissions limit for process fugitive emissions from blast furnace charging was selected on the basis of the results of EPA-sponsored tests of the charging system at two blast furnaces. Each blast furnace charging chute was enclosed in a hood. On the first furnace, the chute was also fitted with a door that opened during charging. The flow rate of each hood was balanced against the flow rate of the primary furnace exhaust to minimize the escape of primary exhaust gases to the charging hood.

The THC emission rate was measured in the duct leading from the charging hood using EPA reference method 25A. Each test consisted of two 3-hour runs. The THC emission rates measured during each run of the first test were 0.026 kg/hr (0.058 lb/hr) and 0.035 kg/hr (0.077 lb/hr) (Docket No. A-92-43, Item No. II-A-5). The THC emission rates measured during each run of the second test were 0.11 kg/hr (0.24 lb/hr) and 0.20 kg/hr (0.44 lb/hr) (Docket No. A-92-43, Item II-A-6). The average THC emission rate for all four runs was 0.090 kg/hr (0.20 lb/hr). The THC emissions were substantially lower from the furnace fitted with the door, but it could not be confirmed that the difference was due to the door or simply normal variation in emissions from well-controlled charging ventilation systems. The THC emission rate from the higher of the two sources tested was less than 1 percent of the THC emissions from the blast furnace charging chute at which the potential emission problem was first detected.

Based on these test results, the EPA is proposing a THC emissions limit for blast furnace charging process fugitive emissions of 0.20 kg/hr (0.44 lb/hr), which was the highest THC value obtained during the test runs and was selected to account for normal variation in THC emissions. The EPA THC data from blast furnace charging are presented in chapter 3 and appendix A of the BID.

3. Fugitive Dust Sources

The proposed standard requires an SOP manual for the control of fugitive dust emissions and also establishes a lead emissions limit for building and enclosure ventilation systems.

a. SOP Manual. The EPA is proposing that each smelter develop an SOP manual that would describe the controls and work practices that would be implemented to control fugitive dust emissions. These control and work practices would be equivalent to those specified in the proposed regulation. The EPA selected the controls in the proposed regulation on the basis of observations made during visits to smelters that had already implemented fugitive dust controls equivalent to the proposed MACT and on the basis of a technical analysis of the effectiveness of different control options (Docket No. A-92-43, Item No. II-B-28).

The use of a site-specific SOP manual is being proposed, rather than a list of required work practices, because there are several equivalent control options available for fugitive dust. The flexibility of the SOP approach is needed because the best control option for a particular smelter would be determined by the physical layout of the smelter and the control measures that are already in place. These two factors vary greatly among smelters.

b. Lead Emissions Limit. The EPA is proposing a lead emissions limit of 2.0 mg/dscm (0.00087 gr/dscf) for ventilation systems for buildings that enclose fugitive dust sources, such as the materials storage and handling area or the furnace and refining and casting areas. This limit was selected on the basis of controlled lead emissions from the process fugitive baghouses (which also controlled some building ventilation emissions) measured during the EPA testing program and is the same limit that was selected for process and process fugitive sources.

F. Reconstruction Considerations

Section 112(a) of the Act defines a new source as a stationary source, the construction or reconstruction of which is commenced after the proposal date of a relevant regulation. An existing source is defined as any stationary source other than a new source.

Reconstructed sources are considered to be new sources. Reconstruction means the replacement of components of an existing source to such an extent that: (1) The fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable new source, and (2) it is technologically and economically feasible for the reconstructed source to meet all relevant promulgated standards for new sources.

Some changes can be made at secondary lead smelters that may be deemed reconstructions under section 63.5 of the General Provisions.

However, the proposed standards for secondary lead smelters are the same for both existing and new sources except in the case of the THC emission limit for blast furnace-only configurations. As a result, the designation as a "reconstruction" has limited practical significance. If a change to an existing blast furnace is determined to constitute a reconstruction, then that furnace would be subject to the proposed THC limit for new blast furnaces, which is more stringent than the limit for existing blast furnaces. In order to meet the more stringent THC limit, a reconstructed blast furnace would probably need to install a new afterburner that could reach a temperature of 870 deg.C (1,600 deg.F), based on the proposed MACT for new blast furnaces.

G. Selection of Compliance Dates

The proposed regulation would require owners or operators of existing secondary lead smelters to achieve compliance with the proposed standards within 24 months of promulgation. This schedule would allow the affected sources the time necessary to modify existing processes and control equipment; design, fabricate, and install new control equipment as needed; develop and implement the SOP for equipment and work practice standards; and complete installation of all required continuous monitoring systems.

The proposed 2-year period for existing sources to achieve compliance with the proposed standard is based on the estimated time needed for a blast furnace facility to have a new afterburner designed, fabricated, installed, and tested. The installation of a new afterburner is the most significant upgrade anticipated under the proposed standard. The EPA believes that a 2-year period is realistic and practical to accomplish these required tasks. The proposed standard is also consistent with compliance deadlines allowed by section 112(i) of the Act, which allows existing sources up to 3 years to achieve compliance.

Owners or operators of new secondary lead smelters would be required to achieve compliance upon startup or promulgation of this NESHAP (whichever is later) and must perform compliance testing within 6 months of startup or promulgation, pursuant to sections 63.6 and 63.7 of the General Provisions.

H. Selection of Emission Test Methods and Schedule

Testing requirements are being proposed for lead, THC, and HCl/Cl₂ from process, process fugitive, and fugitive dust sources.

1. Process Sources

Lead emissions from process emission control devices would be measured using EPA reference method 12, THC emissions would be measured

using EPA reference method 25A, and HCl/Cl₂ emissions would be measured using EPA reference method 26A. For all of these tests, EPA reference method 1 would be used to determine the number and locations of sampling points, method 2 would be used to determine stack gas velocity and volumetric flow rate, method 3 would be used for flue gas analysis, and method 4 would be used to determine the volume percent moisture content in the stack gas. For the measurement of THC and HCl/Cl₂, the Single Point Integrated Sampling and Analytical Procedure of method 3B would be used to measure CO₂ in order to correct for excess air or dilution.

Each test would consist of three runs conducted under representative operating conditions. The average of the three runs would be used to determine compliance. The test methods selected above were used by the EPA to collect the data upon which the proposed emission limits are based.

The proposed standard would require initial tests of lead emissions from all sources and annual compliance tests for process fugitive sources and building ventilation systems. Annual tests of the latter two sources must be performed because compliance with the lead emission standard cannot be continuously monitored. The proposed standard would also require initial compliance tests for THC and HCl/Cl₂ and then monitoring to demonstrate continuous compliance. Following the initial THC compliance test, no annual compliance test would be required if the facility maintains or exceeds the minimum afterburner temperature established during the initial compliance test. Following the initial HCl compliance test, no annual compliance test would be required if the facility maintains the required level of fluxing, scrubber parameters, or SO₂ concentration established during the initial compliance test or operates and maintains an HCl monitor.

2. Process Fugitive Sources

An annual compliance test for lead using the same methods as for process sources would be required for process fugitive control devices. If a facility is subject to the THC emission limit for blast furnace charging, then an initial test would be required that would use the same THC measurement methods as for process sources.

Compliance with the face velocity and flow rate requirements for enclosure hoods over process fugitive emission sources would be determined by measuring the flow in the duct leading from the source and by measuring the area of the openings in the hood and the area of the refining kettle, if appropriate. Volumetric flow rate in the duct would be measured using EPA reference method 2. Hood face area or kettle surface area would be measured directly.

There are no EPA reference methods for directly measuring the face velocity of a hood. The use of a hand-held anemometer was evaluated, but this technique is not as accurate or as precise as calculating the

face velocity from the measured volumetric flow rate and face area.

3. Fugitive Dust Sources

Compliance with the lead emission standard for building ventilation emission points would be determined using the same methods as for process sources. Compliance would be determined through an annual test of each emission point, except in the case of emissions from identical control devices that are discharged through separate stacks.

If a facility has two or more identical control devices for building ventilation, then each would be required to undergo an initial compliance test. Subsequent compliance tests, however, could be alternated or rotated among the identical control devices so that not all of them would be tested every year. However, at least one device would be tested each year and each device would be tested at least once every 5 years. This provision assumes that the maintenance of identical units would be similar as a result of the baghouse inspection and logging procedures in the monitoring requirements of the proposed standard. In addition, smelters would only be allowed to alternate compliance testing as long as they demonstrate compliance with the baghouse inspection and logging provisions of the proposed monitoring requirements. This provision is being proposed to reduce unnecessary testing costs. This provision would not apply to control devices receiving emissions from process or process fugitive sources.

I. Selection of Proposed Enhanced Monitoring Requirements

Section 114(a) of the Act, as amended under section 702(b) of title VII of the 1990 amendments, requires enhanced monitoring and the submission of periodic compliance certifications for all major stationary sources. Compliance certifications shall include information on the methods used for determining compliance status and statements as to whether compliance was determined on an intermittent or continuous basis.

The enhanced monitoring requirements proposed herein were determined by examining the hierarchy of monitoring options available for specific processes, pollutants, and control equipment. This hierarchy may range from monitoring continuously the emissions of a specific pollutant or pollutant class to the continuous monitoring of a related process or control device parameter. Each option was evaluated relative to its technical feasibility, cost, ease of implementation, and relevance to its underlying process emission limit or control device.

The proposed standards for secondary lead smelters contain monitoring requirements for process sources, process fugitive sources, and fugitive dust sources. The proposed standards require either pollutant monitoring directly through the use of a CEM, parameter

monitoring that indicates proper operation and maintenance of a control device, or recordkeeping to ensure that specific work practices are being followed.

1. Process Sources

Monitoring requirements are being proposed to ensure control of metal HAP, organic HAP, and HCl/Cl₂ emissions from process sources.

a. Metal HAP's. The EPA is proposing that each process baghouse be monitored with a COM and that a site-specific opacity limit be established for each process emission point. The site-specific opacity limit for an affected baghouse would be equal to the maximum 6-minute opacity reading recorded by a COM during the initial compliance test for lead emissions, plus 2 percent opacity to allow for normal drift in the output from the COM. Exceedance of the site-specific opacity limit would constitute a violation of the standard for lead emissions.

The proposed MACT for the control of metal HAP's is a baghouse of the design now used in the industry that is operated and maintained optimally on a continuous basis. The facilities at which baghouses were assessed in the EPA testing program had comprehensive, periodic inspection and maintenance programs to ensure proper operation of the baghouses. However, these inspection and maintenance programs are relatively costly to implement, and offer no explicit assurance that the emission limitations in the standards are being achieved on a continuous basis.

Emissions from a baghouse change with time as a result of incidental or periodic upsets (e.g., torn bags) and normal wear of baghouse components. Inspection and maintenance programs aid in protecting against slow, continual degradation of baghouse performance but do not ensure continuous optimal operation. Although inspection and maintenance may indicate a baghouse is functioning normally, there is no assurance that an established emission limitation is being achieved. Furthermore, these programs, if sufficiently comprehensive to ensure the baghouse is performing optimally on a continuous basis, are labor-intensive and, as noted, quite costly.

The EPA estimates that with a good inspection and maintenance program a baghouse may still emit, on average, an emission stream with an opacity of 5 or 10 percent. Several theoretical and experimental studies have been performed to quantify the relationship between the PM concentration in an emissions stream and the opacity of the stream. From such a relationship developed at a secondary brass/lead smelter, it is estimated that gases in a stack with a 1.5 meter diameter exhibiting an opacity of 10 percent could contain as much as 80 mg/dscm PM. Given that the PM discharged from process baghouses at secondary lead smelters typically contains about 25 percent lead, the lead concentration of the baghouse discharge corresponding to 10 percent

opacity would be 20 mg/dscm. This is 10 times the pollutant concentration of the proposed standard (Docket No. A-92-43, Item No. II-A-35).

In contrast, the use of COM's offer a timely, sensitive and direct indication of increased emissions. They give an immediate indication of an occurrence, which provides for timely action that will minimize the duration and, therefore, the emissions, of an upset. They can also address the long-term gradual deterioration of performance of a baghouse.

In addition, COM's are cost-effective. A typical, generally available monitor with auxiliaries costs about \$37,300 to install and about \$16,500 to operate annually. Proper usage of a COM can ensure that the gases emitted from a baghouse exhibit less than 2 percent opacity on average over a year (Docket No. A-92-43, Item No. II-B-34). The approximate cost-effectiveness of reducing the average opacity from 10 percent to 2 percent through the use of a COM is \$2,100 per ton of lead or \$525 per ton of PM.

The EPA invites comments on the reasonableness of incorporating this strategy for COM into the final standard promulgated for this source category.

b. Organic HAP's. The EPA is proposing two monitoring options that smelter operators may pursue. Continuous monitoring systems are available for THC, but the operating and maintenance costs of existing systems may be prohibitive for many sources in this category. Alternatively, operators may continuously monitor afterburner or exhaust stream temperature, which correlates strongly with THC emissions, after conducting an initial performance test to demonstrate compliance with the THC standard.

Under the second option, THC and temperature would have to be measured simultaneously for three runs lasting 1 hour each during the initial THC compliance test. The average THC concentration and temperature would be determined for the total sampling period. Compliance with the THC standard would be determined on the basis of the average THC concentration. The minimum allowable afterburner or exhaust temperature would be determined on the basis of the average temperature during the total sampling period. To remain in compliance, the owner or operator could not allow the average temperature for any 3-hour period to fall more than 28 deg.C (50 deg.F) below the average measured during the initial THC compliance test. Allowing the average temperature to fall below this level would constitute a violation of the emissions standard.

The proposed allowable temperature range of 28 deg.C (50 deg.F) for the afterburner or combined reverberatory/blast exhaust streams is based on temperature data collected during the organic HAP and THC testing performed by the EPA. During the test of the blast furnace, the

3-hour average temperature of the afterburner varied over a range of 32 deg.C (59 deg.F). During the test of the reverberatory/blast furnace configuration, the 3-hour average temperature of the combined exhaust stream varied over a range of 29 deg.C (52 deg.F). The proposed 28 deg.C (50 deg.F) allowable temperature range is consistent with the range allowed in the monitoring requirements for sources controlled by afterburners in other Federal standards (40 CFR part 60, subparts EE, MM, SS, TT, WW, BBB, DDD, FFF, III, NNN, QQQ, SSS, and VVV).

Another THC compliance test would be required if the operator desires to establish a lower afterburner temperature. Owners or operators also have the option of monitoring THC using a CEM instead of temperature.

c. HCl and Chlorine. Continuous emission monitors are available for HCl, but they have not been used in this industry. Furthermore, the estimated capital and annual costs of these CEM's for the entire industry would be \$2,900,000 and \$1,400,000, respectively. The cost of requiring an HCl CEM would double the capital and annual cost impacts of the proposed standards and would increase the number of facilities that are significantly impacted. Other, less costly monitoring options are available, so the EPA has determined that an HCl CEM should not be required and several alternative monitoring options are being included in the proposed standard. However, these alternatives allow the use of an HCl CEM to fulfill the monitoring requirements for HCl/Cl₂, if an operator chooses to use one.

Where SO₂ scrubbers are used, continuous emission monitoring for SO₂ can be used as an indicator of scrubber performance. Alternatively, scrubber parameters, including sorbent injection rate and pH, can also be monitored as indicators of scrubber performance. Where fluxing with soda ash or limestone is used to preclude HCl/Cl₂ emissions, monitoring the use of these fluxing agents can ensure that sufficient quantities are being added to control emissions.

The EPA is therefore proposing four alternative monitoring options for control of HCl/Cl₂: (1) manual monitoring of the addition of soda ash and limestone, (2) instrument monitoring of scrubber parameters, (3) CEM for SO₂, or (4) CEM for HCl. Each of these alternatives is described below.

Option 1. Owners or operators could monitor the amounts of soda ash and limestone added to the smelting furnace and the total amount of charge material added during the 8-hour shift in which the initial HCl/Cl₂ compliance test was performed. This ratio of soda ash and limestone to total charge material would establish a minimum ratio that would be maintained thereafter. A new HCl/Cl₂ compliance test would be required if the operator wanted to alter the amount or type of fluxing agent to be used in the future. Continued compliance would be determined on the basis of the ratio of soda ash and limestone to total

charge material added to the furnace during each 8-hour shift thereafter. Failure to maintain the same ratio would constitute a violation of the HCl/Cl₂ standard.

Option 2. The owner or operator of a facility that has a scrubber to control HCl and Cl₂ could record the scrubber liquid injection rate and pH every 15 minutes during the initial HCl/Cl₂ compliance test, which consists of three 1-hour runs. The average of these recorded values for pH and media injection rate would be used to establish minimum operating parameters for the scrubber that must be maintained thereafter. Failure to maintain the minimum scrubber media injection rate or minimum inlet pH would constitute a violation of the HCl/Cl₂ standard.

The media injection rate would be recorded every 15 minutes after the HCl compliance test and could be no less than 70 percent of the average injection rate demonstrated during the initial HCl compliance test. No data were collected during the EPA tests on the variability of SO₂ scrubber media injection rates. The proposed 30-percent allowable drop in media injection rate is adopted from the range allowed in the monitoring requirements in other Federal standards (40 CFR part 60, subparts LL, OOO, and PPP) for sources controlled by wet scrubbers.

The standards in subparts LL, OOO, and PPP are for control of PM sources, not acid gases. Therefore, the EPA is also considering allowing no drop in liquid injection rate, but has not included that requirement in the proposed regulation. The EPA solicits comment on the appropriateness of allowing a 30-percent drop in liquid injection rate.

The scrubber media inlet pH would also be recorded every 15 minutes and the 3-hour average could be no more than 1.0 pH points below the average inlet pH demonstrated during the initial HCl/Cl₂ compliance test. The allowable pH range of 1.0 for the scrubber media inlet pH is based on data collected during the HCl/Cl₂ testing performed by the EPA. During the EPA test of the blast furnace, the 3-hour average pH of the sorbent at the SO₂ scrubber inlet varied from 7.7 to 8.3, a range of 0.6. At the reverberatory/blast furnace tested, the pH of the sorbent at the SO₂ scrubber outlet showed a similar pH range. An allowable pH range of 1.0, rather than 0.6, is being proposed because HCl and Cl₂ are absorbed more easily than SO₂, and control of HCl and Cl₂ would not vary significantly over a scrubber sorbent pH range of 1.0.

Option 3. The owner or operator of a facility that operates an SO₂ scrubber could record the SO₂ concentration every 15 minutes during the initial HCl/Cl₂ compliance test. The average of these recorded values for SO₂ concentration would be used to establish a 3-hour average maximum SO₂ concentration that could not be exceeded thereafter. The SO₂ concentration would be

recorded every 15 minutes and the average for any 3-hour period could be no more than 200 ppmv above the average SO₂ concentration measured during the initial HCl/Cl₂ compliance test. A 3-hour average SO₂ concentration exceeding the maximum SO₂ concentration would constitute a violation of the HCl/Cl₂ standard.

The allowable SO₂ range is based on data collected during the HCl/Cl₂ testing performed by the EPA. During the test of the reverberatory/blast furnace configuration, the 3-hour average SO₂ concentration, as recorded by the facility's SO₂ CEM, ranged from 37 ppmv to 195 ppmv. During the test of the blast furnace, the 3-hour average SO₂ concentration ranged from 0 ppmv to 50 ppmv. An allowable range of 200 ppmv above the average SO₂ concentration measured during the initial HCl/Cl₂ compliance test is being proposed to reflect the range of SO₂ concentrations measured and the fact that HCl and Cl₂ are absorbed more easily than SO₂.

Option 4. The owner or operator could also install, operate, and maintain an HCl CMS and demonstrate compliance with an initial HCl/Cl₂ compliance test and by meeting all of the requirements for CMS's found in the General Provisions. The CO₂ concentration needed to correct for dilution would be determined during the initial HCl/Cl₂ compliance test and would not need to be continuously monitored. To remain in compliance, the HCl concentration measured by the CMS and corrected to 4 percent CO₂ must remain below an HCl limit of 15 mg/dscm.

The HCl limit of 15 mg/dscm for enhanced monitoring was based on the results of the EPA-sponsored HCl/Cl₂ testing. These tests indicated that about 98 percent of the chlorine was emitted as HCl.

2. Process Fugitive Sources

The proposed MACT for control of metal HAP emissions from process fugitive sources is an enclosure-type hood ventilated to a baghouse. When these hoods are in place and the smelter has demonstrated compliance with the proposed face velocity and flow rate requirements, no further monitoring of capture efficiency would be necessary. Similarly, the proposed MACT for control of organic HAP emissions from blast furnace charging is proper balance between the blast furnace charging and primary exhaust ventilation systems. No monitoring of blast furnace charging would be necessary after compliance has been demonstrated with the THC limit for blast furnace charging.

As noted previously, no CMS's are available for lead. In addition, a COM cannot be used to monitor process fugitive baghouse performance because the opacity of uncontrolled process fugitive emissions is too low to indicate a control device failure. Therefore, the proposed standard would require daily, weekly, and monthly inspection of process fugitive baghouses and would require monitoring the pressure drop and

water flow rate of PM scrubbers. Scrubbers are used instead of baghouses at some smelters to control process fugitive sources.

The majority of smelters already perform regular inspections of baghouses and monitor scrubber operating parameters as part of normal baghouse and scrubber operation and maintenance. These monitoring requirements would ensure that the control devices are being operated and maintained in a manner consistent with good air pollution control practices. These monitoring requirements are being proposed as separately enforceable standards. However, a violation of the proposed monitoring requirements could not be used to indicate a violation of the proposed lead emissions limit for process fugitive sources. Therefore, the proposed standard would also require an annual compliance test of lead emissions.

The proposed baghouse inspection program is the only monitoring option available for process fugitive sources controlled by baghouses at secondary lead smelters. This proposed requirement is not intended to serve as a model of monitoring requirements for other source categories of particulate or HAP emissions controlled by baghouses.

3. Fugitive Dust Sources

Monitoring of compliance with the work practice controls for fugitive dust sources specified in each smelter's SOP manual would be accomplished through recordkeeping requirements that would also be specified in the SOP.

A COM is not applicable to the building and enclosure ventilation emission points that are subject to the lead emissions limit. The proposed standard, therefore, would require a baghouse inspection program and an annual compliance test of lead emissions for the same reasons as those described above for process fugitive baghouses.

J. Selection of Notification Requirements

Owners or operators of secondary lead smelters would be required to comply with all of the notification requirements under section 63.9 of the General Provisions. An owner or operator would be required to submit the initial notification, notifications of performance tests, notification of CMS performance evaluations, and the notification of compliance status. Information submitted in these notifications would confirm that the source is subject to the standards and establish the source's compliance status.

Each operator of a smelter would also be required to submit the fugitive dust control SOP manual to the Administrator or his or her authorized representative, along with a notification that the smelter is seeking review and approval of the manual. Operators of existing smelters would be required to submit the manual no later than 180 days before the compliance date for existing smelters. Operators of new

smelters would be required to submit the manual no later than 180 days before startup of the new smelter but no sooner than the effective date of the proposed standard.

The notification of compliance status would list the results of any performance tests and opacity measurements, methods used for determining continuous compliance, descriptions of the air pollutant control equipment and methods applied at each affected emission point, and a statement as to whether the source is in compliance with all relevant standards and provisions of this subpart. The proposed regulation would waive the requirement that the smelter perform an analysis demonstrating whether the smelter is a major source or area source since the regulation would apply equally to all smelters. The compliance notification would also certify that the facility has completed an SOP manual for the control of fugitive dust emissions and that the SOP manual has been approved by the Administrator.

K. Selection of Recordkeeping and Reporting Requirements

The recordkeeping and reporting requirements of the General Provisions for 40 CFR part 63 would apply to secondary lead smelters unless specifically superseded in this part.

1. Recordkeeping

Consistent with the General Provisions of part 63 and with the operating permit rules in part 70, promulgated under title V of the Act, records required by this part would be retained for at least 5 years. Each affected source would be required to maintain records of the results of compliance tests for each of the proposed emission limits, including THC, lead, and HCl/Cl₂. These records are necessary to document the initial compliance determination with these standards. If a smelter is subject to the proposed emission standards for THC and must monitor afterburner or exhaust stream temperature to comply with the proposed enhanced monitoring requirements, then records of the afterburner or exhaust stream temperature would be maintained. These records could be in the form of strip charts or digital printouts, with the period between measurements not to exceed 15 minutes. A block average temperature would be recorded every 3 hours. These records would be used by an affected source to demonstrate continuous compliance with the THC standards.

The source would be required to maintain records explaining any periods when the monitored afterburner temperature dropped below the minimum established during the facility's initial THC compliance test. Maintenance records of the afterburner temperature monitor would also be required pursuant to section 63.10 of the General Provisions. All secondary lead smelters that currently operate afterburners already monitor and record afterburner temperature as part of normal

afterburner operation and maintenance. Therefore, the incremental burden associated with these proposed recordkeeping requirements for temperature are considered minimal.

Each source would be required to maintain records of opacity, as measured by a COM and in terms of 6-minute averages. Records would also be maintained of any exceedances of the site-specific opacity limit and any corrective actions following those exceedances. Maintenance records of the opacity monitor probes would also be maintained, including records of periodic cleaning and replacements and calibration checks, pursuant to section 63.10 of the General Provisions. These records would be used to demonstrate continuous compliance with the opacity standard.

Each source would also be required to maintain records consistent with the enhanced monitoring approach chosen for controlling HCl/Cl₂ emissions to ensure that the source is in continuous compliance with the HCl/Cl₂ standard. If an owner or operator chooses to rely on fluxing as a control for HCl/Cl₂, records of the soda ash or limestone added to the smelting furnace and the total amount of material charged would have to be maintained. The amount of fluxing agent added and material charged would be recorded on a total-per-shift basis. Most smelters already maintain records of fluxing agents added to the furnace and material charged as a normal part of production and quality control. Consequently, the incremental burden associated with this recordkeeping requirement would be minimal.

If a source operates an acid gas scrubber and the owner or operator chooses to control HCl and Cl₂ with the scrubber rather than through fluxing, then the source would be required to either (1) maintain records of scrubber media injection rate and pH, or (2) maintain records of SO₂ concentrations measured continuously with a CMS. Most sources with scrubbers already maintain records of media injection rate and pH as part of normal scrubber operation, as well as CMS's for SO₂. If a source operates a CMS for HCl, it would maintain records of HCl concentration.

Records would also be maintained of fugitive dust control activities, as required by each smelter's SOP.

2. Reporting

Owners or operators of secondary lead smelters would be required to comply with all of the reporting requirements under section 63.10 of the General Provisions. They would be required to report the results of performance tests and CMS performance evaluations, and to submit quarterly excess emissions and CMS performance reports or summary reports.

These quarterly reports would include summaries (e.g., 3-hour averages) of the records required to demonstrate continuous compliance with the proposed standards. These reports would also contain summaries

of the records that are required to demonstrate continuous compliance with the fugitive dust control measures described in the source's SOP manual, including an explanation of the periods when the procedures outlined in the SOP were not followed.

The Administrator believes that excess emissions and compliance parameter monitoring reports are a critical enforcement tool. Therefore, the proposed standard would require quarterly, rather than semi-annual reports. However, pursuant to section 63.10(e)(3)(ii) of the General Provisions, sources may request to reduce reporting frequency after they can demonstrate continuous compliance for a one-year period.

L. Operating Permit Program

Under title V of the Act, all HAP-emitting sources would be required to obtain an operating permit. Oftentimes, the emission limits and the requirements for monitoring, reporting, and recordkeeping for a facility are scattered among numerous provisions of State Implementation Plans or Federal regulations. As discussed in the final rule for the operating permit program, published on July 21, 1992 (57 FR 32295), an operating permit under this new permit program will include all of the requirements that pertain to a single source in a single document.

After a State's permit program has been approved, each secondary lead smelter within that State must apply for and obtain an operating permit. If the State where the secondary lead smelter is located does not have an approved permitting program, the owner or operator must submit the application under the General Provisions of 40 CFR part 63. The addresses for the EPA Regional Offices and States are included in the General Provisions.

M. Whether to Also Regulate Air Emissions Under RCRA

As noted earlier, air emissions from secondary lead smelting furnaces are also potentially subject to regulation under RCRA because the battery and other lead-bearing secondary feed is often classified as a hazardous waste because of lead content. These emissions are presently exempt from regulation (40 CFR 266.100(c)), but the EPA is considering whether RCRA controls are necessary as part of this rulemaking. The EPA has agreed to reexamine the appropriateness of the exemption as part of a settlement agreement in *Horsehead Resources Inc. v. Browner*, No. 92-1221. The settlement agreement provides that the EPA may issue revised regulatory standards under the Act alone, under RCRA, or under both statutes.

The EPA is proposing to continue exempting air emissions from

secondary lead smelting furnaces from RCRA essentially because the EPA believes these emissions will be comprehensively and adequately regulated under the section 112 rules proposed here, plus the subsequent residual risk determination. Although the RCRA standard for regulation ["as may be necessary to protect human health and the environment", RCRA section 3004 (a)] differs from the initial technology-based regime of section 112 of the Act, the EPA does not believe that further RCRA regulation of air emissions is necessary. The reasons are that: (1) The proposed MACT optimizes control of the principal HAP contributed by the hazardous waste (i.e. lead-bearing feed, as opposed to fossil fuels) processed by the source by imposing the best pollution control technology for the principal HAP--lead compounds--emitted from these sources; (2) all secondary lead smelters (both major and area sources) would be controlled by the proposed standards; (3) the proposed standards control not only stack emissions, but facility-wide fugitive emissions; (4) organic HAP's are controlled as well, and emissions of chlorinated organic HAP's (such as PCDD's and PCDF's) are minimal; and (5) HCl and Cl₂ emissions are controlled as well. To the extent any significant residual risk remains after MACT standards are implemented, the risk will be addressed through the section 112(f) residual risk process. Consequently, the EPA believes that RCRA regulation of air emissions from these sources should not be required.

In this regard, it is important to remember that RCRA section 1006 requires the Agency to "integrate all provisions of [RCRA] for purposes of administration and enforcement and * * * avoid duplication, to the maximum extent practicable, with the appropriate provisions of the Clean Air Act * * * ". The EPA believes that imposition of RCRA air emission standards for these sources could result in the types of unnecessary duplication that section 1006 is intended to prevent. Accordingly, the Agency is proposing to retain the current regulatory exemption from RCRA regulation for air emissions from secondary lead smelters.

There is also a second potential area of overlap between RCRA standards and the proposed MACT standards. This is with respect to strategy units that are presently regulated under RCRA. The EPA believes that the controls for fugitive dust emissions proposed in this rule (proposed Secs. 63.545 (c)(2) and (c)(5) in particular) are consistent with, and complement, the existing RCRA standards. The RCRA standards are directed largely at preventing releases of waste to land and groundwater, and so would be complemented by the proposed rules, which are directed to preventing exposure via an air exposure pathway. In addition, the provisions of the RCRA rules preventing air emissions are consistent with the standards proposed today. For example, Sec. 264.1101(c)(1)(iv) prevents fugitive dust emissions from

containment buildings by prohibiting visible emissions and achieves the same emission control objective of the fugitive dust control standards being proposed today. The Agency solicits comment, however, to ensure that none of the requirements for RCRA storage units are incompatible with the standards proposed today.

N. Solicitation of Comments

The EPA welcomes comments on all aspects of the proposed standards and specifically solicits comments on the following: (1) The determination by the EPA that area sources in the category present a threat of adverse effects to human health and therefore should be regulated; (2) the use of fluxing agents to eliminate HCl and Cl₂ emissions from smelting furnaces, including the technical feasibility of this approach, any adverse impacts on smelting operations, and its effectiveness in reducing HCl/Cl₂ emissions; (3) the feasibility and impacts of establishing a THC limit for existing blast furnaces based on an afterburner temperature above that identified as the MACT floor (700 deg.C); and (4) the proposed enhanced monitoring requirements, including the proposed strategy of establishing a site-specific opacity limit concurrent with the initial lead compliance test. Comments on these aspects of the standards will be most useful if they contain specific information and data pertinent to an evaluation of the magnitude and severity of the impact(s) and suggested alternative courses of action that would avoid the impact(s).

VII. Administrative Requirements

A. Public Hearing

A public hearing will be held, if requested, to discuss the proposed standards for secondary lead smelters, in accordance with section 307(d)(5) of the Act. Persons wishing to make an oral presentation at a public hearing should contact the EPA at the address given in the ADDRESSES section of this preamble. Oral presentations will be limited to 15 minutes each. Any member of the public may file a written statement before, during, or within 30 days after the hearing. Written statements should be addressed to the Air Docket Section address given in the ADDRESSES section of this preamble and should refer to Docket No. A-92-43. A verbatim transcript of the hearing and written statements will be available for public inspection and copying during normal working hours at the EPA's Air Docket Section in Washington, DC (see ADDRESSES section of this preamble).

B. Docket

The docket is an organized and complete file of all the information submitted to, or otherwise considered by, the EPA in the development of this proposed rule. The principal purposes of the docket are to: (1) Allow interested parties to readily identify and locate documents so they can intelligently and effectively participate in the rulemaking process, and (2) serve as the record in case of judicial review, except for interagency review materials [section 307(d)(7)(a) of the CAA].

C. Executive Order 12866

Under Executive Order 12866 (58 FR 5173, October 4, 1993), the EPA must determine whether a regulatory action is "significant" and, therefore, subject to Office of Management and Budget (OMB) review and the requirements of the Executive Order. The Order defines "significant" regulatory action as one that is likely to lead to a rule that may: (1) Have an annual effect on the economy of \$100 million or more, or adversely and materially affect a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities; (2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency; (3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligation of recipients thereof; or (4) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

The proposed regulation presented in this notice was submitted to the OMB for review. Any written EPA response to those comments are included in the docket listed at the beginning of today's notice under ADDRESSES. The docket is available for public inspection at EPA's Air Docket Section, which is listed in the ADDRESSES section of this preamble.

D. Paperwork Reduction Act

The information collection requirements in this proposed rule were submitted for approval to OMB under the Paperwork Reduction Act, 44 U.S.C. 3501 et seq. An Information Collection Request document was prepared by the EPA (ICR No. 1686.01), and a copy may be obtained from Sandy Farmer, Information Policy Branch, U.S. Environmental Protection Agency, 401 M Street SW. (2136), Washington, DC 20460, or by calling (202) 260-2740. The public reporting burden for this collection of information (including emission testing) is estimated to average 1,200 hours per smelter for reporting in the first year in which compliance is demonstrated and 550 hours per year for subsequent years, and to require 210 hours annually per smelter for recordkeeping. These

estimates include time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, 2136, U.S. Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460, and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503, marked "Attention: Desk Officer for EPA." The final rule will respond to any OMB or public comments on the information collection requirements contained in this proposal.

E. Regulatory Flexibility Act

The Regulatory Flexibility Act (5 U.S.C. 601 et seq.) requires the EPA to consider potential impacts of proposed regulations on small business entities. If a preliminary analysis indicates that a proposed regulation would have any economic impact on any small entities, then a regulatory flexibility analysis must be prepared.

Present Regulatory Flexibility Act guidelines indicate that an economic impact should be considered significant if it meets one of the following criteria: (1) Compliance increases annual production costs by more than 5 percent, assuming costs are passed on to consumers; (2) compliance costs as a percentage of sales for small entities are at least 10 percent more than compliance costs as a percentage of sales for large entities; (3) capital costs of compliance represent a significant portion of capital available to small entities, considering internal cash flow plus external financial capabilities; or (4) regulatory requirements are likely to result in closure of small entities. Based on discussions with technical support experts, the EPA formulated alternative criteria for the determination of significant impacts in the secondary lead industry. The guidelines were discussed in the economic impacts section of this preamble.

The results of an economic assessment indicated that the proposed rule will have an economic impact on small business entities. However, adverse economic impacts have been minimized to the greatest extent possible in this rule making, and those that remain are unavoidable. All of the small entities that are currently operating and that are impacted are major sources of HAP's for which the EPA is required to propose MACT standards. Consequently, the economic impacts can not be minimized by proposing less stringent standards based on GACT. The standards being proposed in this rule making are based on MACT floor controls, and in no instance did the EPA choose to propose standards based on controls more stringent than the floor. The EPA was also able to identify alternatives to add-on controls (e.g., process

modifications and work practices) in the MACT floors that offered equivalent levels of control.

The EPA has minimized the impacts associated with monitoring by adopting a surrogate pollutant approach and by allowing for alternative monitoring strategies when available. Finally, the EPA has minimized the impacts associated with recordkeeping and reporting by proposing only the minimum requirements needed to document continuous compliance with the proposed emission limits.

F. Pollution Prevention Considerations

Pollution prevention/source reduction is the use of process modifications or alternative processing technologies to reduce air pollutant emissions from the source, rather than through the use of add-on controls. Several pollution prevention and source reduction options were considered for application to the secondary lead smelter industry in this rulemaking. These options are described in more detail in chapter 3 of the BID.

1. Emission Prevention Through Electrowinning

Electrowinning is a process to recover lead metal by dissolving lead compounds in acid and then depositing lead metal on a cathode in an electrolytic cell. Electrowinning is being developed as an alternative to the use of smelting furnaces to reduce lead compounds to lead metal. Electrowinning would reduce potential emissions of metal HAP's, organic HAP's, and HCl/Cl₂. This process is still experimental and has not been demonstrated on a commercial basis anywhere in the world. However, the proposed standards would not prevent a smelter from pursuing this technology. The proposed standards for process sources are in the form of emission limits and operators may use any technology that can achieve the emission limit. There are no design, equipment, or work practice requirements that would discourage or prohibit the use of this technology.

2. Organic HAP and HCl/Chlorine Emission Prevention Through Plastic Removal

Plastic battery separators are sources of organic HAP and HCl/Cl₂ emissions from smelting furnaces. Technology is available to remove these materials from the furnace feed material and this may decrease organic HAP and HCl/Cl₂ emissions. However, no data are available to confirm such a decrease and the recycling options for the recovered material are limited. Material that is not recycled would need to be disposed of as hazardous waste if it is contaminated with lead. However, the proposed standards would not prevent a smelter from pursuing this option.

3. HCl and Chlorine Emission Prevention Through Fluxing

Soda ash or limestone can be added to a smelting furnace to prevent

emissions of HCl and Cl₂. The use of fluxing agents would avoid the need for a wet scrubber and the solid waste and wastewater impacts associated with a wet scrubber. This practice is currently in use in the secondary lead industry and is incorporated in the proposed regulation.

4. HCl and Chlorine Emission Prevention Through Dechlorination of Flue Dust

Chlorine is found in the flue dust of secondary lead smelters in the form of lead chloride. Recycling the flue dust to the smelting furnace causes the chlorine to build up in the furnace and baghouse system until it is released as HCl or Cl₂, unless it is removed in the slag. The same technology that can be used to perform paste desulfurization can be used to remove chlorine from the flue dust by diverting the flue dust to the paste desulfurization system before recycling it to the furnace. This strategy is being used by at least one secondary lead smelter and it appears to be as effective as fluxing in the control of HCl and Cl₂ emissions. The proposed standards would not prevent smelters from pursuing this option.

G. Miscellaneous

In accordance with section 117 of the Act, publication of this proposal was preceded by consultation with appropriate advisory committees, independent experts, and Federal departments and agencies. The Administrator welcomes comments on all aspects of the proposed regulation, including health, economic, and technological issues, and on the proposed test methods.

This regulation will be reviewed 8 years from the date of promulgation. This review will include an assessment of such factors as evaluation of residual health risks, any overlap with other programs, the existence of alternative methods, enforceability, improvements in emission control technology and health data, and the recordkeeping and reporting requirements.

VIII. Statutory Authority

The statutory authority for this proposal is provided by sections 101, 112, 114, 116, and 301 of the Clean Air Act, as amended; 42 U.S.C., 7401, 7412, 7414, 7416, and 7601.

List of Subjects in 40 CFR Part 63

Environmental protection, Air pollution control, Hazardous substances, Reporting and recordkeeping requirements, Secondary lead smelters.

Dated: May 27, 1994.
Carol M. Browner,
Administrator.
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